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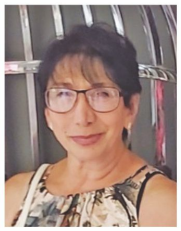

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INDIGENOUS FLORA AS A SOURCE OF ARID ORNAMENTAL HORTICULTURE IN ARMENIA

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Yerevan 2023

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Indigenous flora as a source of arid ornamental horticulture in Armenia

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The purpose of the present work is to assess the prospects for the use of native xerophilous ornamental plants in gardening and landscaping schemes in the arid regions of Armenia. Currently, many wild plants, including xerophilous ornamentals, are not used due to insufficient botanical information and lack of cultivation methods. The book contains morphological description, data on geographical distribution, habitats and some recommendations on utilization and growing techniques for 196 herbaceous plant species with ornamental potential, belonging to 135 genera and 46 families of vascular plants. Among wild ornamental plants there is a significant number of rare and endangered species listed in the Red Book of Plants of the Republic of Armenia. Introduction into the culture can serve as one of the measures for their protection. The study will make it possible to scientifically substantiate the range of wild ornamental plants for horticulture and landscaping in the cities and villages of the arid regions of Armenia. Xerophilous ornamental plants can be used in flower beds in gardens and parks, in rock and scree gardens, for decorative borders, in group plantings on lawns or open spaces, to create Mauritanian lawn, Mediterranean style garden, butterfly and moon gardens, for creating landscape compositions in a natural style in an urban environment, as cut flowers for bouquets and floral compositions and many others. The book will be of interest to botanists, specialists in the field of floriculture, landscape design, florists and people who are interested in wild ornamental plants. 166 photos, 1 map, 35 bibliographic entries.

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Reviewer: Doctor of Biological Science M. E. Oganesian

A.N.S.E.F.

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Introduction

The flora of Armenia is rich and diverse in species composition and useful plant resources. Around 3800 species of vascular plants of 160 families and 913 genera grow in Armenia with a total area of about 30.000 km^2 (Fifth National Report to the Convention on Biological Diversity, 2015). The formation of such plant diversity in a small area has been influenced by the complex geological structure of Armenia, high altitudinal range (375–4090 m asl), soil and climate variability, and by location at the junction of different floristic provinces such as moderately humid Caucasian and arid Armenian-Iranian (Bagdasaryan, 1958; Balyan,1969; Takhtajan, 1978).

One of the main tasks of botanical research is the study of plant diversity in order to identify its valuable resources. Since ancient times, wild flora has been an inexhaustible source of ornamental plants. The ornamental flora of the Caucasus was the subject of scientific research by many famous botanists (Yaroshenko, 1940; Grossheim, 1946; Mirzoeva, Akhverdov 1959; Serdyukov, 1972; Kharkevich, 1966). Thanks to their explorations, classifications and lists of wild ornamental woody and herbaceous plants have been developed, valuable information on their involvement in culture, in the ornamental gardening and landscaping has been obtained. N. V. Mirzoeva and A. A. Akhverdov (1959) classified ornamental herbaceous plants of the wild flora of Armenia to 64 families, 300 genera and 716 species. Beautifully flowering 623 wild plant species were identified in Transcaucasia, which also covers Armenia (Gabrielyan & Fragman-Sapir, 2008). Many works of Armenian botanists are devoted to the study of native wild-growing ornamental plants, their biological characteristics and ornamental value, to the development of methods for cultivation (Magakyan & Mirzoeva, 1940. Akhverdov, 1956; Mirzoeva, Akhverdov, 1959; Akhverdov, Mirzoeva, 1962, 1964, 1973, 1982; Hovnanyan, 1979, 1982; Grigoryan, Pitsakyan, 1985; Grigoryan, Ziroyan, 1994; Martirosyan, 2004; Akopian et al., 2019 and others).

The introduction of new ornamental plants to cultivation from the wild flora of Armenia is scientifically and culturally useful and important. Armenia is very rich in original and beautiful, predominantly xerophytic flora representatives that grow in all belts – from Ararat valley semideserts to alpine belt inclusive. On the basis of this flora, it is possible to obtain valuable flower crops for floriculture and landscape greening in extreme conditions of existence – in both hot and cold climates, however, the utilization and breeding of these plants is not almost conducted. Many of wild growing ornamental plants of the arid areas of Armenia have aesthetic value and are of practical interest for floriculture due to their adaptive capabilities to dry environmental condition. The majority of them either can be used without preliminary breeding or are a useful material for selection work and for enriching the assortment of flower crops.

In Armenia, the following landscape types are distinguished: deserts, semideserts, dry steppes, steppes, light forests, subalpine and alpine lands. Most of the arid desert and semidesert area with sagebrush, halophyte, hygrohalophyte, psammophyte, gypsiferous-clayish, phrygana-like, steppe plant communities occur in the Ararat valley, Vayots Dzor and Meghri districts. Due to increased pressure on vegetation, climate change, and anthropogenic impact, many arid habitats are transformed or degraded, and as a result, plant species adapted to a certain range of

environmental factors become scarce or disappear. Approximately 14% (452 species) of the flora of Armenia is listed in the Red Book of Plants of Armenia (Tamanyan et al., 2010). Among the rare and endangered species there is a large number of ornamentals adapted to growing in arid area. Most of xerophytic ornamental species occur on dry clayey, stony-clayey and dry rocky slopes (Mirzoeva, Akhverdov, 1959). Such habitats, saturated with xeromorphic ornamental species as psammophytic, gypsum-clayey, wormwood, halophytic semi-deserts, salt marshes are subject to particularly anthropogenic impact. A number of species that occurred in the recent past in abundance, have survived only in small, rare fragments with natural vegetation and are presented by populations with a small number of samples.

One of the current trends for the protection of threatened plant species is their conservation under ex situ conditions (Sharrock, 2012). A great importance is given to scientific research and ex situ conservation of living plants documented collections in the Botanical Gardens where their biological characteristics are studied and agricultural techniques are developed (Sharrock and Wyse-Jackson, 2008; Heywood, 2017; Mounce et al., 2017). For many years conservation of living plants and the models of the main types of plant communities have been carried out at the exhibition Plot “Flora and Vegetation of Armenia” of the Yerevan Botanical Garden NAS RA which was founded in 1937-1938 (Maghakyan, 1939; Akhverdov, Mirzoeva, 1961, 1962, 1964; Akopian, 2010, 2019; Akopian et al., 2017). The most characteristic taxonomic composition is selected for each community modelled at the Plot. Priority is given to threatened or insufficiently studied species of the native flora, as well as to species of economic or ornamental value. The cultivation of ornamental threatened plants under ex situ conditions and their involvement into the practice of floriculture and landscaping can serve as an effective measure for their conservation (Younis et al., 2010; Colombo et al., 2020). However, many wild plants with ornamental potential are not used due to insufficient botanical information, lack of data on biomorphological, phenological and reproductive characteristics, their adaptive capacity to new conditions, necessary for the development of conservation strategies, and incomplete development of cultivation methods. In order to decide how to successfully grow plants newly introduced into culture, it is necessary to conduct a number of studies in some aspects of botany and agricultural technology.

The arid natural conditions significantly limit the use of many flower crops for outside growing. Therefore, the drought-resistant wild species adapted to the local climatic and environmental conditions are of scientific and practical interest for the development of an assortment for ornamental horticulture. Present study contributes to the consideration of the prospects for the use of wild ornamental plants in the arid conditions of Armenia, the expansion of the range of native ornamental plants for floriculture, gardening and landscaping. The xerophyllous plants are relatively undemanding to soils and can be successfully grown on soils with low fertility, gypsum-bearing, salted and loamy soils. Best of all, they feel in bright full sun or slightly shaded places. When evaluating the plants ornamental qualities, such indicators as life cycle, growth habit, leafiness, the shape, texture and color of the leaves, green mass richness, the abundance of flowering, the color and shape of flowers, the proportionality of plant parts and generative shoots, as well as other qualities, determining aesthetic impression are taken into account. Some categories of their use are identified. The arid plants with potential ornamental values can be

Sagebrush semidesert landscape of the Ararat valley

Plump solonchaks in the vicinity Yeraskhaun of Armavir province

Relict salt marshes in the vicinity of Ararat town

Goravan Sands Sanctuary landscape

Gypsiferous semidesert landscape of the Ararat valley

Marl-clay slopes against the background of the inner gorge of Mount Yeranos

utilized in flowerbeds in gardens and parks, in rockeries, for ornamental borders, in group plantings on lawns or open spaces, for creating Mediterranean style gardens, butterfly, moonish and scree gardens, as cut flowers for floral compositions and bouquets. They are an ideal component of the Mauritanian lawn and cottage gardens, can be used for creating natural style plantings in the urban environment. The scientific data on morphological characteristics, on altitudinal and geographic distribution, habitats, terms of flowering, recommendations on utilization and cultivation methods of 196 native ornamental plant species of the Armenian flora, belonging to 135 genera and 46 families are presented. The study mainly includes species growing in the lower (which ranges from 480–1200 m a.s.l.) and middle (1200–1800 m a.s.l.) mountain belts of Armenia, and some species with a wide adaptive amplitude, rising from lower to upper, sometimes to alpine belt.

Map of the floristic regions (1–12) of Armenia (Takhtajan, 1954)

Geographical distribution of species in Armenia is given by the floristic regions in accordance with the scheme of A. L. Takhtajan (1954).

The comparative lists of representatives of Armenian flora with potential ornamental value and some ornamentals adopted in the general practice of horticulture and landscaping are presented in the Supplement. Local ornamental species, which have been tested for cultivation at the exhibition plot “Flora and Vegetation of Armenia” of the Yerevan Botanical Garden since 1938 to the present are indicated in the lists.

The local plant species included in the work are identified using the sources of “Flora of Armenia” (1954-2010), “Ornamental herbaceous plants of Armenia” (Mirzoeva, Akhverdov, 1959), biomorphological and phenological records, developed on the collection “Flora and vegetation of Armenia” of the Yerevan Botanical Garden NAS RA and personal observations in the natural habitats and under the cultivation.

Ornamental plant species of Armenian flora recommended for utilization in arid gardening and landscaping

Acanthaceae

The genus *Acanthus* includes about 20 species, some of which have been in culture for a long time. *Acanthus* is grown for their beautiful leaves, flowers and original bracts, it is easy, long lived, drought tolerant plant. This spiny-leaved herbaceous plant was named for Pedanius Dioscorides (40-90 AD), Greek physician and herbalist who practised in Rome. The word "acanthus" also refers to a sculptural or relief ornament in the form of a stylized plant – acanthus. It is one of the most common plant forms to make foliage ornaments in the architectural tradition emanating from Greece and Rome. Use of the *Acanthus* motif continued in Medieval art, particularly in sculpture and wood carving.

***Acanthus dioscoridis* L.**

Acanthus dioscoridis is a rhizome herbaceous plant 30-40 cm tall (photo 1). Leaves are entire, long, narrow and have a slightly hairy texture. Inflorescence is dense, oblong. Bracts are acuminate, spinose-dentate, a violet, corolla is unilabiate, purplish-pink. Flowering is observed in June–July.

The native range of the species is East Anatolia, North Iraq and West Iran. In Armenia it is found in Gegham floristic region, at the foot of the mountain Hatis, in middle mountain belt, in stony habitats, among meadow-steppe vegetation, at the altitude of 1600–1700 meters above sea level. Critically endangered species of the flora of Armenia. Very beautiful *Acanthus dioscoridis* is practically not found in culture.

Recommendations for use in the arid ornamental landscaping and gardening: in the flower beds in gardens and parks, in the front part of the border, as cut flowers in fresh and dried compositions, in room culture, excellent for small gardens. In culture *Acanthus* prefers to grow in a well-drained site in position with intense diffused light. Best of all, it feels in a bright place or a slightly shaded place. Cold-tolerant plant, it can withstand low temperatures without winter protection. The plant must be fed from spring to autumn with fertilizers containing organic compounds. *Acanthus* is transplanted in the spring into an earthen mixture consisting of equal parts of sod, leafy, humus soil, peat and sand. *Acanthus* species are propagated by seeds and cuttings. Seeds should be planted in March and scarified before planting. When propagated by cuttings, this method allows you to better maintain the decorative qualities of the plant.

Alliaceae

Ornamental representatives of *Allium* began to be grown by flower growers in the 17th century, when the collections of botanical gardens in European countries began to replenish. Original and spectacularly flowering onions were quickly introduced into the culture. About 150 species are used in ornamental gardening.

Allium plants are indispensable in micro-landscapes that combine elements of inanimate and living nature, such as rock gardens and rockeries. Among the decorative onions, there are many suitable for cutting, arranging bouquets and compositions. During the growing season, it is necessary to provide the bulbs with evenly moist, but not soggy soil, and also reduce watering during the dormant period. Almost all alliums are light-loving, so it is better to choose a place for them that is not shaded during the day. Alliums require full sunlight, but the hot midday sun can be too intense in dry conditions. Therefore, morning partial lighting, an east-facing flower garden and adequate watering create the necessary conditions for utilization *Allium* representatives in arid landscaping. Reproduction is by seeds and vegetatively. Seeds of xerophytic ephemeroids germinate only when sown in late autumn, after exposure to a complex of conditions of the autumn-winter-spring season. Vegetative propagation of bulbous species occurs through branching (division) of bulbs and the formation of bulbs developing on the bottom and stolons of the mother bulb. Rhizomatous species reproduce mainly by dividing the bush using sections of the rhizome. In all species, small bulbs can form on the inflorescences, which can be used for planting.

***Allium atroviolaceum* Boiss.**

Allium atroviolaceum is a perennial herb with a large spherical-ovoid bulb. Stems are 30-100 cm tall. Leaves are broadly linear, flat. Inflorescence is irregularly spherical, many-flowered. Perianth lobes are purplish-violet or purplish-pink. Stamens are 6, ovary superior, three-celled. Blooming observes in June–August.

It is native for the Caucasus, Europe, West and Central Asia. In Armenia the species is distributed in Shirak, Lori, Aparan, Sevan, Yerevan, Darelegis, Zangezur and Meghri floristic regions, from the foothills to the upper mountain, in sagebrush semidesert, mountain steppe, juniper forests, shiblyak, on dry slopes, at an altitude of 700–2300 m above sea level.

Recommendations for use in the arid ornamental gardening and landscaping: for planting in small groups on lawns or open spaces, for rockeries. In landscaping schemes some of countries it is grown in gardens as an ornamental plant. For *A. atroviolaceum* cultivationis desirable to select well drained light sandy soils with reaction of the soil solution close to neutral. Good lighting is essential for full manifestation of flower and leaves colors. In the designthey look effectively with feather grass (*Stipa*) species. Many little bulbs are formed on the bottom of mother bulb and stolons. At the end of August its seeds ripen.

***Allium cardiostemon* Fisch. et C.A. Mey.**

Allium cardiostemon is a perennial herbaceous plant up to 40 cm in height, with a spherical-ovoid, gray-brown bulb (Photo 2). Leaves are 2-5, (0.5)1-2(3) cm in diameter, belt-like, bluish-dark green, spirally arranged. The flowers are collected in hemispherical inflorescences 2-4 cm in diameter. The perianth is stellate with dark wine lobes 4-5 mm long. Blooming is obseved in June–July.

The species is native for Southern Transcaucasia, East Anatolia, North-West Iran, North Iraq. In Armenia it is distributed in Upper-Akhuryan, Shirak, Aragats, Lori, Aparan, Sevan, Gegham, Yerevan, Darelegis, Zangezur and Meghri floristic

regions, in the middle and upper mountain belts at an altitude of 1500–2500 m above sea level, in the meadow-steppe, steppe, meadows, rocks, screes, shiblyak, juniper, friganoids, oak-ash forests.

Recommendations for use in the arid ornamental landscaping and gardening: for rock gardens and borders, for planting in lawns or open spaces. It is valuable for its late flowering and deeply colored flowers. Plant can easily grow in sunny well-drained sites, has medium watering requirements, prefer the soil to become dry between waterings. It can be propagated by seed and division. The soil requirements for *Allium cardiostemon* are clay, loam, sand. It needs a dry summer rest.

***Allium materculae* Bordz.**

Allium materculae is a perennial bulbous plant with strong, thick stems,10-30 cm in height (Photo 3). Leaves are 1-6 cm width, oblong-elliptic or linear-lanceolate, wavy along the edges. Inflorescence is fascicular, spherical in fruits, 6-15 cm in diameter. Pedicels are thin, pink or yellowish. Perianth is stellate, lobes from lilac-pink to silvery-white. Filaments are narrowly triangular-subulate, silvery-white at the base, pink-lilac above, anthers yellow. Capsule is heart-shaped, ocher, bulb 2-3 cm in diameter, ovoid-spherical. Blooming observes in April–May.

The species is native in South Transcaucasia, E. Anatolia, N-W & N Iran. In Armenia it is distributed in Yerevan, Darelegis and Meghri floristic regions in foothills, lower and middle mountain belts, dry rocky places, screes, sands, clay slopes, in phryganoid communities, at an altitude of 700–2000 m above sea level.

Recommendations for use in the arid ornamental gardening and landscaping: in mass plantings creating early spring flower beds, for rockeries. This plant is usually planted in the foreground of a rock garden, where it attracts attention with its originality. Grows well in light well-drained or sandy soils, requires satisfactory lighting and maderate watering.

***Allium rubellum* M. Bieb.**

Allium rubellum is a perennial bulbous plant with stem up to 60 cm high. Leaves are filiform to narrowly linear, grooved, 2-3 mm width. Inflorescence is umbel spherical or hemispherical, many-flowered, 2-4 cm in diameter. Perianth is 3-6 mm long, campanulate, lobes lilac-pinkwith dark vein. Bulbs are solitary, dark brown, without rhizomes. Blooming observes in May–June.

The species occurs in the Caucasus, East Europe, Anatolia, Iran. In Armenia it is distributed in Shirak, Aparan, Yerevan, Darelegis, Zangezur, Meghri floristic regions in foothills, lower and middle mountain belts, at an altitude of 400–1700 m above sea level, in the mountain steppe, sagebrush semidesert, hammada, friganoids, juniper forests, on sands, solonchaks, saline soils, rocks and rocky places.

Recommendations for use in the arid ornamental gardening and landscaping: to create rocky gardens, decoratehills and rocks. *A. rubellum* is a plant of semi-arid areas and can tolerate cold winters with temperature going below zero. However, it requires a dry period in the summer and autumn when it is dormant. Not do very well outdoors in areas with summer and autumn rain. It prefers a sunny position in a light well-drained soil. The bulbs should be planted fairly deep.

Allium scabriscapum **Boiss.**

Allium scabriscapum is a perennial bulbous plant with stem 20-40 cm long (Photo 4). Leaves are flat, inflorescence hemispherical, at 4 cm in diameter, few-flowered. Perianth is cup-shaped, segments elliptical, bright yellow. Blooming is observed in May.

The native range of the species is Nakhichevan, South-East Anatolia, North Iraq, North and South Iran, Turkmenistan. In Armenia it is found in Darelegis floristic region in middle mountain belt, on stony slopes and screes, at the altitude of 1000–1500 meters above sea level. It is included in the Red Book of Plants of Armenia under the category Critically endangered species.

Recommendations for use in the arid ornamental landscaping and gardening: to create rock gardens, decorate hills and rocks, in mass plantings when creating early spring flower beds. When growing *A. scabriscapum* in arid regions, it must be taken into account that it does not require frequent watering in the summer.

Apiaceae

Actinolema macrolema **Boiss.**

Actinolema macrolema is an annual plant, 10-25 cm tall, loosely branched (photo 5). Basal leaves 4-6 × 2-4 cm, ovate or obovate, on long petioles, stem on short ones, apical sessile, three-lobed. The leaves of the wrapper are large, 22-25 mm long. The fruit is about 8 mm long. Blooming is observed in May–June.

The species is distributed in the Caucasus, Syrian Desert, Anatolia, Iran, Iraq.In Armenia it occurs in the Yerevan floristic region, in the lower mountain belt, on dry clayeyslopes. It is included in the Red Book of Plants of Armenia under the category Endangered species.

Recommendations for use in the arid ornamental landscaping and gardening: to create rock gardens, decorate hills and rocks. The soil is not demanding in the culture, can be mass grown in the areas with clayey and slightly salted soils, reproduces by seeds.

Astrodaucus orientalis **(L.) Drude**

Astrodaucus orientalis is a biennial plant up to 150 cm high with bare or slightly pubescent, repeatedly pinnately dissected leaves and glabrous stem. Umbrellas are large, 8-15-rayed. Petals are white, occasionally pink, obovate cordate, with a small segment bent inward, marginal enlarged. Blooming is observed in May–July.

The native range of the species is the Caucasus, West and Middle Asia. In Armenia it occurs in all floristic regions except Aragats and Gegham, on dry rocky slopes, at an altitude 800–1100 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create a Mauritanian lawn, for planting in groups on lawns or open spaces, can be a good addition to continuous flowering flower beds and long-range plantings. It is not demanding on soils. *Astrodaucus orientalis* should be grown in full sun and watered regularly. Reproduction is by seed. Seeds should be sown in a well-draining soil mix

and kept moist until germination. The seedlings are small and have a white root system.

Bupleurum rotundifolium L.

Bupleurum rotundifolium is an annual herbaceous erect plant with a few branches (Photo 6). Leaves blue green, are speared through by the stem (perfoliate), simple, alternate, entire margins. Lower and middle leaves are oval to oblong and veined. Upper leaves are perfoliate, almost orbicular with numerous veins, lobed or unlobed. Bracts are with prominent veins, oval to ovate, with tips acuminate or cuspidate. Flowers are yellow-green striking, with 5 to 10 radial petals in an umbel. Blooming occurs from May to July.

The native range of the species is the Caucasus, Central and East Europe, Mediterranean to Central Asia, invasive in the United States and in South Africa. In Armenia it is found in Ijevan, Sevan, Yerevan, Zangezur, Meghri floristic regions, on dry open slopes, in fields, waste places and roadsides, and growing as a weed on cultivated land.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in small groups on lawns or open spaces, in gardens for its unusual flowers and nice foliage, in the front to middle of a flower border, to create a Mauritanian lawn. *Bupleurum* is popular with flower arrangers as cut flowers look good in bouquets. It grows best in average, moist to dry, well-drained soils in full sun to partial shade. Self-sowing is observed. *Bupleurum* flowers are known for attracting pollinators.

Eryngium billardieri F. Delaroche

Eryngium billardieri is a perennial bluish plant up to 80 cmtall, in the upper part with branched stems (Photo 7). Basal leaves are large, twice pinnately dissected, petiolate, prickly-toothed, cauline sessile, margin spiny. Flowers are white, sessile, in capitate inflorescences, surrounded by 6-9 large prickly involucres leaves, with two nearly opposite spines. The teeth of the calyx are prickly. Blooming is observed from July to September.

The species is native to the Caucasus, Anatolia, Iran, Iraq, Lebanon-Syria, Afghanistan, Pakistan, Turkmenistan, Hymalaya. In Armenia it is distributed in all floristic regions, from lower to upper mountain belts, on dry stony slopes, along roadsides, in wastelands.

Recommendations for use in the arid ornamental landscaping and gardening: for create rocky gardens, decorate hills and rocks, in flower borders, in group plantings or singly; may be grown in containers where they will grow more compactlywith its silvery appearance. The unpretentiousness of the eryngium allows it to be used in all areas of landscape design. It is classic components for winter bouquets. Florists paint the heads of inflorescences in various colors. It is easily grown in medium moisture, sandy and loamy, well-drained fertile soils, in full sun. Prefers temperate, tolerates drought without watering. It propagates by dividing bushes and seeds, grows from seeds is more efficient. The genus *Eryngium* name comes from an ancient Greek name used by Theophrastus for a plant which grew in

Greece (probably *Eryngium campestre*) or is a Greek reference to the spiny nature of plants in this genus.

Ferula orientalis L.

Ferula orientalis is an erect perennial herbaceous plant 1-1.5 m tall. Stem is thin, in the upper part corymbose-branched. Leaves are 5-6 pinnate, triangular to ovate in outline, 30-50 cm long, leaf bases inflated. Inflorescence yellow, 7-15 rayed, central umbel is almost sessile or on a short peduncle, lateral umbels on long peduncles. Calyx teeth are very short. Petals with a short, blunt apex, curved inwards. The fruits are globular. Blooming is observed in June–August.

Global range of the species is the Caucasus, Anatolia, Iran, Iraq. In Armenia it is distributed in Aparan, Yerevan, Darelegis, Zangezur floristic regions, predominantly in the middle mountain belt, insteppes, on dry stony slopes.

Recommendations for use in the arid ornamental landscaping and gardening: in gardens and parks, to create a Mauritanian lawn, when planting in groups on lawns or open spaces. In landscape gardening, it is possible to use it as an ornamental leafy plant in addition to flower beds of continuous flowering and plantings in the background. The umbrella is decorative both during the flowering period and at the fruiting stage due to seeds of a beautiful shape. *Ferula orientalis* can be propagated by seed or division. Seeds should be sown in autumn or early spring. The seedlings are small, with round leaves and a single stem.

Hippomarathrum microcarpum **(M. Bieb.) B. Fedtsch.**

Hippomarathrum microcarpum is a perennial herbaceous plant up to 1m high, grey-green. The stems are angularly ribbed, strongly branched from the base or above, branches located opposite or whorled. The leaves are repeatedly pinnately dissected into narrow segments. Umbrellas are 7-12-beam. Flower petals are yellow, broadly ovate or almost rounded with a blunt apex curled inward. Blooming is observed in June–July.

The species is distributed in the Caucasus, Anatolia, Iran. In Armenia it occurs in Shirak, Ijevan, Aparan, Sevan, Yerevan, Darelegis, Zangezur, Meghri floristic regions, from the lower toupper mountain belts, on dry stony slopes.

Recommendations for use in the arid ornamental landscaping and gardening: to create a Mauritanian lawn, for planting in small groups on lawns or open spaces, in summer cottages. A good location would be a sunny or slightly shady area. Reproduces by seeds, self-sows.

Lisaea papyracea **Boiss.**

Lisaea papyracea is an annual plant with erect, branched stems, up to 50 cm in height (Photo 8). The whole plant is densely pubescent with short hairs mixed with long, hook-shaped hairs. Leaves are with 5-7 oblong, deeply toothed leaflets, pubescent on both surfaces, setose along the veins beneath. Bracts are 3-7, scarious, much shorter than the rays. Bracteoles are lanceolate or obovate. Petals white, the outer 5-7 mm, obovate-cordate, bilobe. Blooming is observed in May–June.

The native range of the species is South Transcaucasia and Anatolia. In Armenia it is found in Yerevan floristic region, on clay slopes, fallows and crops, at an altitude of 980–1400 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create a Mauritanian lawn, for planting in groups on lawns or open spaces, often used in gardens. It prefers moist, well-drained soils in full sun to partial shade, an area sheltered from strong winds. It is tolerant of a wide range of soils, from sandy to clay, and can be grown in both acid and alkaline soils. It can be propagated by seed sown in spring or autumn.

***Peucedanum ruthenicum* M. Bieb.**

Peucedanum ruthenicum is a perennial plant with thrice pinnately dissected leaves (Photo 9). Stem is 1.5 m high, not hollow, glabrous, green or purple. Basal and lower cauline leaves are with 8-17 cm long petioles, triply ternate; lobes 2-5 cm long, 1.5-2.6 mm wide, linear, herbaceous, glabrous. Middle cauline leaves with 3.5-10 cm long petioles, filiform, with wide, amplexicaul sheaths. Main rays 10-18, unequal, 2-7 cm long, bracts 1-3, linear, deciduous or absent. Umbels with 15-25 flowers, petals pale yellow. Mericarps are equal or almost equal to the pedicels. Blooming is observed in July–August.

Native range of the species is the Caucasus, South-East Europe. In Armenia it occurs in Shirak, Lori, Ijevan, Aparan, Sevan, Yerevan, Zangezur floristic regions, in the middle and upper mountain belts, on wooded slopes, subalpine meadows.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for garden beds, to create a Mauritanian lawn, for planting against the background of lawns or open spaces. Reproduces by seeds, self-sows. The plant is placed in open, sunny places; it is drought-resistant and does not almost require artificial watering.

***Pimpinella aurea* DC.**

Pimpinella aurea is a perennial herbaceous plant densely and shortly pubescent. Stem splayed-branched 50-100 cm in height. Inflorescences are complex umbrellas without wrappers, 3-8 rays. Petals are yellow. Fruits are spherical, almost naked. Blooming is observed in July–August.

The species is distributed in the Caucasus, Iran, Middle Asia. In Armenia it occurs in Shirak, Aparan, Yerevan, Darelegis, Zangezur, Meghri floristic regions, in the lower, middle and upper mountain belts, on the dry slopes.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in small groups against the background of lawns, to create a Mauritanian lawn. Is one of the common aromatic plant species. Sowing seeds should be done directly into the ground, autumn sowing is recommended.

***Prangos ferulacea* (L.) Lindl.**

Prangos ferulacea is a perennial herbaceous plant, round-shaped, 0.5-1.5 m tall (Photo 10). Basal and lower stem leaves are pinnate, 60-80 cm long, leaf lobes linear.

Inflorescence 7-15 rayed, pale yellow. Flowers cover all plant in peak blooming. Fruit elliptical to globose, whitish, often pink tinged. Blooming is observed in May–June.

The native range of the species is the Caucasus, South-East Europe to Iran, Syria. It is widely distributed in Armenia in all floristic regions exceptIjevan, in the middle and upper mountain belts, on stony slopes, mountain steppes.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds and garden beds, for planting in groups against the background of lawns or open spaces, to create a Mauritanian lawn. *Prangos ferulacea* is especially decorative in early spring, but it retains the splendor of foliage until the end of July. In culture a drought-resistant plant, grows both in shade or partial shade, and in the sun, frost-resistant.

Apocinaceae

Vinca herbaceae Waldst. et Kit.

Vinca herbaceae is a perennial herbaceous plant with stems, spreading along the ground, and short rhizome. Leaves are round-elliptic or lanceolate, flowers single, corolla 15-20 mm in length, blue-violet, sometimes whitish. Blooming is observed in June–August.

The species is distributed in the Caucasus, in Middle and South-East Europe, Anatolia, Iran, Iraq. In Armenia it occurs in Ijevan, Zangezur, Meghri floristic regions, in the lower and middle mountain belts, among shrublets, on the forest edges, on limestone outcrops.

Recommendations for use in the arid ornamental landscaping and gardening: for rock gardens, as a trailing creeper, in the flower lawn, as groundcover in garden landscapes and container gardens. *Vinca* should be planted in the sun or partial shade, where the soil is not dry, prefers well-drained, slightly acidic soil. Propagation by seeds and cuttings from mid summer to early autumn. Semi hard wood cuttings are taken from the current year growth. *Vinca* has been bred since the 1920s, many cultivars are available.

Photo 1. *Acanthus dioscoridis*

Photo 2. *Allium cardiostemon*

Photo 3. *Allium materculae*

Photo 4. *Allium scabriscapum*

Photo 5. *Actinolema macrolema*

Photo 6. *Bupleurum rotundifolium*

Photo 7. *Eryngium billardieri*

Photo 8. *Lisaea papyracea*

Photo 9. *Peucedanum ruthenicum*

Photo 10. *Prangos ferulacea*

Asparagaceae

Asparagus verticillatus L.

Asparagus verticillatus is a perennial herbaceous vine with climbing stems (Photo 11). Leaves are scaly, with a hard spur. Flowers are hemispherical or spherical, white or greenish-white, 2-3 mm long. Stamens 6, filaments flat, anthers spherical, orange. Fruits are red, spherical, one-seeded, seeds black, shiny. Blooming observes in May–June.

The species is native to the Caucasus, Anatolia, Iran. In Armenia it is distributed in all floristic regions from the foothills to the upper mountain belt, in river valleys, in bushes, on stony moist places, along edges and ravines, in gorges, at an altitude of 700–2500 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for vertical gardening, in lawn, border and flower bed plantings, to decorate bouquets. The plant is suitable for sandy, loamy and clay soils and prefers well-drained moist soil. It can grow in semi-shade and also no shade. Reproduction can be carried out through sowing seeds, dividing the bush and using cuttings. When cultivated in open ground, it grows up to 3 meters in height and up to 1 meter in width. Species is dioecious, it is pollinated by bees.

Asphodelaceae

Eremurus spectabilis M. Bieb.

Eremurus spectabilis is tuberous geophyte 50-100 cm tall (Photo 12). Roots are fleshy, spindle-shaped, thickened, up to 25 cm long, located star-shaped on a shortened rhizome. Leaves are 6-15, basal, linear-trihedral, rough along the edge, bluish in color, glabrous, up to 4.5 cm wide, directed obliquely upwards. The peduncle is almost erect, 1 cm in diameter, with a dense multi-flowered raceme up to 80 cm long. Flowers with a yellow funnel-bell-shaped perianth up to 9 mm long, its lobes are oblong-linear. Bloomingis observed in May–June.

The species is native in the Caucasus, Anatolia, Iran, Iraq, Afghanistan. In Armenia occurs in all floristic regions, except Upper-Akhuryan and Shirak, in middle and upper mountain belts on rocky slopes among rocks, in bushes at an altitude of 1500–2300 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: on alpine hills and in rocky gardens, on ornamental flower beds, as a decorative element of cottage gardens, wonderful for city gardens, Mediterranean gardens and oriental style gardens. *Eremurus* can plant alleys, tracks. *Eremurus* inflorescences look good not only on flower beds in the garden, but also in bouquets. Beautiful inflorescences are suitable for the simplest arrangements, as well as for fashionable compositions created by florists. The flower is great for decorating wooden fences or buildings. *Eremurus* looks good both alone and in the neighborhood with other ornamental plants. It looks organic with poppies, irises, cornflowers, daylilies. Successfully decorate a large rocky garden. With the help of eremurus, you can create a lawn

frame. When planting, it is necessary to maintain a distance between plants of at least 30 cm. It prefers a very well drained, very rich, light sandy loam in a warm sunny sheltered position. The plant is sun-loving, but tolerates some shading. It blooms in the 5-8th year. On clay soils, it is necessary to mix clay with sand and pour sand under the rhizome and on top. The depth of planting rhizomes is about 15 cm. By the end of summer, the aerial part of the eremurus dies off, at this time you can dig up the rhizomes and divide them. Then they should be dried for 2-3 weeks in a shady dry place and can be planted again in a permanent place.

Aspleniaceae

Asplenium adiantum-nigrum L.

Asplenium adiantum-nigrum is perennial evergreen plant with creeping or straight rhizome. Fronds up to 30-40 cm, with plates twice or thrice pinnatisected, lanceolate or oval, pointed, leathery, more or less shiny, with segments distant from each other and directed upwards. Spores are ovoid-reniform, reticulate-membranous from the surface. The spores ripen in August–September.

The species is distributed in the Caucasus, Eurasia, Africa, America.In Armenia it occurs in Aragats, Lori, Idjevan, Zangezur floristic regions, in forests, shibliak, rocks, at an altitude of 1000–1800 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create rockeries, decorate hills, for planting in heavily shaded areas. It grows best in partial shade, with normal moisture, on fertile, with the addition of coarse sand, neutral soil. For the winter, it is good to cover with a fallen leaf or spruce branches. It reproduces by spores and vegetatively.

Asplenium ruta-muravia L.

Asplenium ruta-muravia is small epipetric fern 5-15 cm high with winter green fronds and short rhizome, covered with linear-lanceolate black-brown scales (Photo 13). Fronds are bluish-green, triangular in outline, triangular-oval or oval-lanceolate, dissected. Blade is 2-6×1-4 cm, deltate-ovate to obovate or oblanceolate 1-2(-3)-pinnate to 2-pinnate-pinnatifid. Sori located on the underside of the leaf, 2-6 per lobe, linear, then confluent. The spores ripen in June–August.

The species is native to the Caucasus, Europe, East Asia, North America. In Armenia it is found in Aragats, Ijevan, Aparan, Sevan, Yerevan, Darelegis, Zangezur, Meghri floristic regions, on rocks, limestone crevices, walls of churches, forests, sparse woodlands, at an altitude 1000–2900 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in shaded rocks and hills, for growing in wall crevices, for vertical landscaping, along old walls, in shady gardens, along the edges of reservoirs, when landscaping slopes. It is undemanding to moisture and soil (although it prefers alkaline and neutral). The main condition is good drainage. With a lack of moisture, the leaves curl up and unfold again with increasing humidity. Shade-loving, in open places it becomes miniature. It is propagated by dividing the bush in the spring at the beginning of growth and spores. It is winter-hardy under snow cover. It often grows slowly in culture.

Asteraceae

Amberboa moschata (L.) DC.

Amberboa moschata is an annual plant 20-70 cm tall with erect, slightly branched stems (Photo 14). Leaves arefromentiretoserrated or pinnately dissected. Flowers are pinkish or purple-pink; marginal ones infundibular, larger than central ones. Pappus is 5-7 mm long. Blooming is observed in May–June.

The species is native to the Caucasus, Anatolia, Iran, Iraq. In Armenia it is found in Yerevan floristic region (surroundings of Yerevan city), on dry clayey, gypsum-bearing, gravelly, stony places, in wormwood semidesert, in crops, at an altitude of 600–1500 m above sea level. Endangered species of Armenian flora.

Recommendations for use in the arid ornamental landscaping and gardening: for flower beds in parks and gardens, in mass plantings on the background of lawns and as cut flowers for bouquets. The plant reproduces well by seeds. It is popular in ornamental gardening of many countries. This is a well-known cut flower crop, but the scale of its cultivation for this purpose is small. In Armenia, *Amberboa moshata* from local populations has not used in ornamental floriculture and gardening.

Achillea tenuifolia Lam.

Achillea tenuifolia is a perennial herbaceous erect plant up to 80 cm tall with a thick woody rhizome. Stems are whitish, densely tomentose pubescent. Leaves are pinnately dissected or separate. Baskets are ovoid, inflorescences many-flowered, corymbose, flowers yellow. Blooming is observed in May–July.

The native range of the species is the Caucasus, Anatolia, Iran. In Armenia it grows in the Shirak, Yerevan, Darelegis, Zangezur, Meghri floristic regions, in the lower and middle mountain belts, in semideserts, on dry, rocky, gravelly, sandy places.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in groups on lawns or open spaces. Easy grow from seed, thrives in full sun and well-drained soil, but it will tolerate a variety of soil conditions. The genus *Achillea* also contains local species such as *A. nobilis* L. subsp. *neilreichii* (A. Kerner) Takht., *A. setacea*Waldst. et Kit., *A. filipendulina* Lam. with white, cream and yellow flowers that are also suitable for use in dryland ornamental gardening.

Artemisia splendens Willd.

Artemisia splendens is a perennial herbaceous plant forming a dense, cushion-shaped, silvery pubescent turf 3-8 cm in height, during flowering 15-25 cm in height (Photo 15). Flowering stems are few, ascending, simple, thin, bluntly ribbed, slightly pubescent with appressed silvery hairs. The basal leaves are 1.2-2.5 cm long, round in outline, palmately or pinnately dissected into narrow segments, in turn deeply incised or dissected, less often trifoliate, on long petioles. Stem leaves are few, short, slightly dissected. Baskets 0.5-0.7 cm in diameter, erect or drooping, axillary, forming simple racemose inflorescences, sometimes narrow panicles. Flowers are yellow. Blooms in August.

The native range of the speciesis the Caucasus, Anatolia, Iran. In Armenia it is distributed in the Upper-Akhuryan, Shirak, Aragats, Aparan, Sevan, Gegham, Darelegis, Zangezur, Meghri floristic regions, on gravelly, rocky slopes, in mountain steppes, in alpine meadows.

Recommendations for use in the arid ornamental landscaping and gardening: in gardens and parks, it is suitable for carpet beds and rocky hills decoration, as a low hedge of artemisia to divide garden sections or edge a pathway; for pairing silver artemisia with pastel-colored plants or creating contrasting colors with spiny plants with purple or blue flowers; for create Moon gardens with white flowers and silver or variegated foliage plants that can be seen in the reflected light of the moon. It prefers full sun and dry, well-drained soil. It can be grown in containers or in the gardens and landscapes. It is drought tolerant and can tolerate a wide range of soil conditions, frost-resistant. *Artemisia splendens* can be propagated by seed or division.

***Aster amellus* subsp. *ibericus* (Steven ex M. Bieb.) Avetisyan**

Aster amellus subsp. *ibericus* is a perennial herbaceous plant 20-70 cm tall, with a short rhizome (Photo 16). Stem is erect, branched, leafy, pubescent. Lower leaves obovate, petiolate, middle and upper stem leaves sessile. Baskets are from 3-5 cm in diameter with a wide hemispherical involucre. Marginal flowers twice the length of the involucre, linear-lanceolate, purple or blue, 5-15 mm long. Flower disc, yellow, tubular, 5-6 mm long. Blooming is observed from June to September.

The species is native to the Caucasus and North-East Anatolia. In Armenia it is found in Upper Akhuryan, Shirak, Lori, Ijevan, Aparan, Sevan, Darelegis, Zangezur floristic regions, from the lower to upper mountain belt, on the forest edges, in bushes, in dry meadows.

Recommendations for use in the arid ornamental landscaping and gardening: for flowerbeds in gardens and parks, for solar mixborders. As an ornamental plant it is widely used in flower gardens. Many *Aster amellus* cultivars with lilac, lavender, pink, light and dark blue inflorescences are used in floriculture. The plant is adaptable to a range of light conditions but blooms best in full sun. It prefers moderately fertile, alkaline, well-draining soil. Although it can tolerate poor soil conditions, it grows best in soil rich in organic matter. The plant propagates by seeds and division. Pre-chilling the seed for two weeks can improve germination rates. Division is recommended in spring or autumn.

***Centaurea depressa* M. Bieb.**

Centaurea depressa is an annual herbaceous plant (Photo 17). The stem is straight, ribbed, 60 cm in height. The leaves are oblong-obovate or lanceolate, finely tomentose pubescent. Capitula are solitary, large. Marginal florets in capitula are bright blue, oblique funnel-shaped, barren, internal – blue-violet, tubular, bisexual; rarely all florets are white. The fruits are achenes with a reddish tuft. Blooming is observed in May–August.

The species is distributed in the Caucasus, Europe, Anatolia, Iran, Middle Asia, Pakistan, India, Siberia, in the Far East. In Armenia occurs in Upper Akhuryan, Shirak, Aragats, Lori, Aparan, Sevan, Yerevan, Darelegis, Zangezur, Meghri floristic

regions, from the lower to upper mountain belt, at an altitude of 700-2200 m above sea level, on dry stony slopes, in crops and arable land, in weedy places.

Recommendations for use in the arid ornamental landscaping and gardening: to create a Mauritanian lawn, for wildlife gardens, as a gap-filler in any bare spots in borders, in single and group plantings, in mixborders. It is an easily grown hardy wild flower. Plants may self-sow their seed to bloom the following year. Seeds do not have a dormant period, germinate from a depth of 1-6 cm, remained viable for up to 3 years. Cornflowers do best in soil with low fertility so there's no need to add fertilizer or organic matter. Well-drained soil is best, and sun for at least half the day. To date, a huge number of ornamental varieties of cornflowers have been bred, differing in shape, size and color of inflorescences (different shades of blue, as well as pink, maroon, and white). According to ancient Greek myth, the plant was so named after the centaur Chiron was healed with its help. Local species *Centaurea iberica* Trev. ex Spreng. can be also used for gardening purposes.

***Centaurea erivanensis* (Lipsky) Bordz.**

Centaurea erivanens is a xeromorphic perennial plant with plagiotropic rhizome (Photo 18). Stems are numerous, thick, with woody base, appressed gray-pubescent, evenly leafy, leaves 40-55 mm length, lanceolate, oval or rhomboid, entire or serrated, sometimes partially slightly dissected, gray or white from dense adpressed pubescence, petioles 30-40 mm long. Generative shoots are erect, 35-40 cm long. Capitula are broadly ovate, with 30-32 shiny silver or yellowish involucres and a few partly protruding whitish-cream florets. Blooming continues from June to early August.

The species is found in Nakhichevan and East Anatolia. In Armenia it is distributed in Yerevan floristic region, on dry clayey gypsum-bearing or slightly saline slopes, in sagebrush semidesert, mountain steppe, among the phryganoid vegetation, at an altitude of 800–2000 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for decoration in rockeries, for ornamental borders, in group plantings in a flower-beds, in groups on lawns or open spaces, as a cut flower for dry bouquets, for plantings on gypsum-bearing and slightly saline areas. The plant is propagated by seeds or division. It prefers well-drained soils and moderate watering.

***Echinops orientalis* Trautv.**

Echinops orientalis is a perennial plant, up to l-l.5 mtall, with stems branched, ridged, arachnoid tomentose or glandular (Photo 19). Leaves are oblong-lanceolate 2-3-pinnatifid or pinnatisect. Capitulum 4-7 cm, corolla blue, pale blue or whitish; tube 12-15 mm; lobes 8-12 mm. Pappus bristles connate to about 1/2 their length. Blooming is observed inJune–July.

The species range is native to the Caucasus, Anatolia, Iran, Iraq, Middle Asia (Kopetdag). In Armenia it is distributed in Aragats, Yerevan, Darelegis, Meghri floristic regions, in the lower and middle mountain belts, in dry places.

Recommendations for use in the arid ornamental landscaping and gardening: for flower beds, against the background of an alpine hill, as a background for undersized flowering crops, for planting on lawns, when landing along the fence. It’s also well

suited to growing in gravel gardens and wildlife areas as it's a magnet for bees and other pollinating insects. Dried *Echinops* plants also looks quite impressive, while it blends well with the green buds of other small flowering plants. It is recommended to plant next to dahlias, phlox, asters and valist. It can also be grown next to Chinese rose, marigold and primrose. Mature plants are highly drought-resistant and withstand severe frosts. An open and well-lit area is suitable for growing. It will develop well if it is placed in the central part of the flower bed, on the south side of the garden. The plant is best grown in well-drained soil in full sun. *Echinops* easily self-sows. It propagated vegetatively by division in autumn or spring, or by rooting cuttings. *Echinops* don't need any special treatment other than cutting back after flowering. Such varieties of *Echinops* are known as 'Veitch's Blue', 'Taplow Blue', 'Arctic Glow'.

***Helichrysum rubicundum* (K. Koch) Bornm.**

Helichrysum rubicundum is a tomentose-lanate pubescent perennial plant (Photo 20). Stems are erect or ascending, 10-45 cm in height. Upper and middle leaves sessile, lanceolate-linear, lower ones petiolate. Capitula are in groups of 10-30 (up to 100) in compact or compound corymbs, on peduncles of unequal length. Involucal bracts are about 50, lax, bright lemon-yellow or pinkish to orange. Blooming is observed in June–August.

The native range of the species is the Caucasus, Anatolia, Iran. In Armenia, it is widely distributed in all floristic regions, except Upper Akhuryan and Gegham, from the lower to the upper mountain belt, on rocks, dry gravelly slopes, in sagebrush semidesert, phryganoid vegetation, from 400 up to 3000 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for rocky hills decoration, for the front of borders and flowerbeds, in rock and gravel gardens, for a Mediterranean style garden, as a cut flower for dry bouquets. It is adapted to grow in full sun and poor, well-drained soils. It can be multiplied both by seed, by cutting and division of tufts. The sowing can be carried out in September, immediately after the seed is harvested or in spring. Propagation by division of tufts must be carried out in spring, when the plants are already sufficiently grown and with a good root system.

***Hieracium cymosum* L.**

Hieracium cymosum is a perennial short-rhizome herbaceous plant with a rosette of leaves and a leafy stem up to 70-100 cm tall, gray-green, pubescent with stellate hairs (Photo 21). Rosette leaves, about 5-6 in number, lanceolate or oblong-lanceolate, entire, up to 23 cm long, stem leaves 2-4, narrower than basal leaves. Baskets (capitula) are collected in an umbrella-shaped inflorescence. Peduncles are with dense stellate pubescence, with sparse glandular hairs, sometimes with black simple hairs. All flowers are ligulate, yellow to dark yellow. The stigmas are yellow. Blooming is observed in June–July.

The global range of the species is the Caucasus, Europe, Siberia, West and Middle Asia. In Armenia it is distributed in all floristic regions, from the lower to the upper mountain belt, in meadows, forests, steppes, on gravel and rocky slopes, screes.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds in gardens, for carpet beds and rocky hills decoration. It is

capable of growing in areas with different soil and climate conditions. The plant reproduces by seeds, as well as vegetative division through rhizomes.

Inula aucheriana DC.

Inula aucheriana is a perennial branched plant 15-45(75) cm in heght, glabrous or pubescent, covered with whitish verrucose tubercles and glands (Photo 22). Rhizome is nodular. Leaves pale green, slightly fleshy, lanceolate or narrow elliptic, basal with long petioles, upper sessile. Capitula gathered in a lax paniculate inflorescence, ligulate flowers yellow. Blooming is observed in July–August (September).

It is found in Nakhchivan, Western Iran and Anatolia. In Armenia it occurs in Yerevan floristic region, in the lower mountain belt, on wet travertines, around mineral springs, on wet solonchaks, mineralized wetlands, at an altitude of 800–1100 m above sea level. Endangered species of Armenian flora.

Recommendations for use in the arid ornamental landscaping and gardening: for planting on lawns or open spaces, along the banks of ponds, in plantings in saline areas. It grows well in any garden soil, with proper moisture in summer. It is particularly suited to clay and salty soils. Propagate by dividing clumps in the spring or autumn or by seeds.

Inula britannica L.

Inula britannica is a biennial or perennial erect herbaceous plant 15-60 cm in high with a very short rhizome (Photo 23). The leaves are silky pubescent below, almost bare above. Lower leaves are elliptical or ovate-elliptical in shape, with a narrow or short petiole. Upper leaves have nopetiole or may clasp the stem and are rounded at the base. Bracts are linear and in 2 rows, green in color and soft. Baskets in a loose shield 3-5 cm in diameter. Flowers yellow in color. Flowering is observed in June–August.

The species is native to Europe and Asia. In Armenia it is distributed in all floristic regions, everywhere in the lower and middle mountain belts, in shrubs, onforestedges, along river banks, wastelands.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in flower beds in gardens and for decorating rocky hills. It is a sun-loving plant, grown easily in both well-drained soils and heavy clay soils, in full sun or partial shade. When watering, it is advisable should not be watered from above. Plants are hardy to at least -15°C. Sowing and dividing is done in spring or autumn. Although generally considered a weed, it is used for decorative purposes. It is an excellent honey plant and attracts many bees. Native another *Inula* species, *I. helenium* L., is also widely grown in gardens for its ornamental and adaptive qualities.

Xeranthemum squarrosum Boiss.

Xeranthemum squarrosum is an annual erect plant 10-60 cm tall with alternate, narrow, entire, wooly leaves 3-4 cm long (Photo 24). Baskets hemispherical-oval, 30-40 flowered. The involucre is naked, its outer leaflets are narrowed pointed, and the

inner ones are stellate-splayed, elliptical-linear, pink or white. Flowering is observed in June-August.

The species is native to the Caucasus, Anatolia, Iran, Iraq, Middle Asia (Kopetdag). In Armenia it is distributed in all floristic regions except Upper Akhuryan and Lori, from the lower to the middle mountain belt, on dry rocky places, among rocks, in mountain steppes, in shrub thickets, in juniper woodlands, in sagebrush semidesert, among phryganoid vegetation, at an altitude of 400–2200 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for decoration in rockeries, in group plantings in flowerbeds, in dried flower arrangements. Suitable for creating original flower beds, as well as for mixed flower plantings. It is widely used in floristry, to create winter bouquets, paintings, compositions, decorative panels, designer crafts. It prefers well-drained and sandy soils. It is propagated easily by seeds.

Photo 11. *Asparagus verticillatus*

Photo 12. *Eremurus spectabilis*

Photo 13. *Asplenium ruta-muravia* (left - *Asplenium trichomanes*)

Photo 14. *Amberboa moschata*

Photo 15. *Artemisia splendens*

Photo 16. *Aster amellus* subsp. *ibericus*

Photo 17. *Centaurea depressa*

Photo 18. *Centaurea erivanensis*

Photo 19. *Echinops orientalis*

Photo 20. *Helichrysum rubicundum*

Photo 21. *Hieracium cymosum*

Photo 22. *Inula aucheriana*

Photo 23. *Inula britannica*

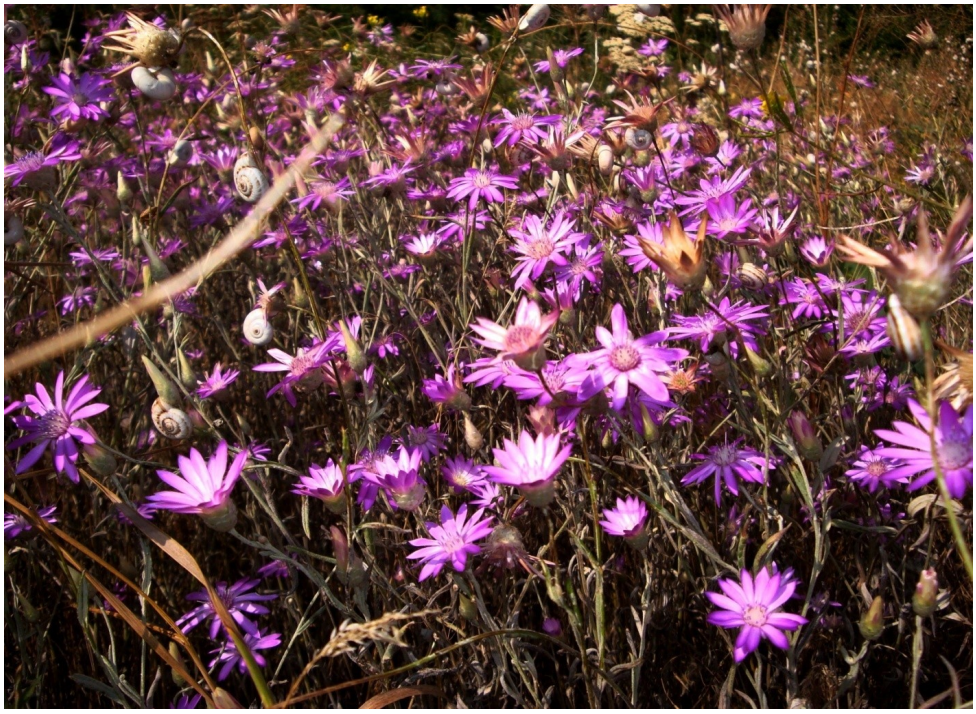

Photo 24. *Xeranthemum squarrosum*

Boraginaceae

Alkanna orientalis (L.) Boiss.

Alkanna orientalis is a perennial plant 15-40 cm height, glandular, bristly pubescent, with a thick rhizome (Photo 25). Basal leaves are elongated-spatulate, petiolate, upper sessile. Flowers are in highly leafy whorls, with yellow corolla. Blooming is observed in April–May.

It is distributed in the Caucasus, Palaestine, Sinai Peninsula, Balkan Peninsula, Anatolia, Iran. In Armenia it occurs in Shirak, Gegham, Yerevan, Darelegis, Zangezur, Meghri floristic regions from the lower to the middle mountain belt, on dry, stony places.

Recommendations for use in the arid ornamental landscaping and gardening: to create a Mauritanian lawn, for rocky hills and rock gardens, suitable for landscaping slopes, as well as for creating flower beds of continuous flowering in the background. For cultivation, dry, well-drained soil, moderate watering, and a sunny location are required. The seeds are characterized by rapid germination.

Caccinia macranthera (Banks et Sol.) Brand

Caccinia macranthera is a perennial herbaceous plant (Photo 26). The root is cylindrical, thick, branched below, deep; stems 25-90 cm tall, often branched, erect, thick, smooth or at the very top with a few strong spines; leaves sessile, oblong-lanceolate or lanceolate, glaucous or glaucous-green, thickish, dotted with sparse large white tubercles, on which short spines sit. Flowers are in paniculate inflorescences with bluish-violet corolla. Blooming is observed in April–June.

The species is distributed in the Caucasus, Middle Asia, Anatolia, Iran, Iraq, Afghanistan, Pakistan. In Armenia it is found in Yerevan, Zangezur, Meghri floristic regions, from the lower to the middle mountain belt, on dry slopes and screes.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds and garden beds, for well-lit borders or well-warmed spots in rocky gardens. The soil must be well drained, drought tolerant. It is propagated by seeds.

Echium vulgare L.

Echium vulgare is a biennial or monocarpic perennial plant 30-80 cm tall, with rough, hairy, oblanceolate leaves (Photo 27). The flowers 15–20 mm long, in a branched dense spike, start pink and turn vivid blue, with all the stamens protruding, the filaments of the stamens remain red. It flowers between May and September.

It is native to the Caucasus, most of Europe, Western and Central Asia, and it occurs as an introduced species in North and South America and New Zeland. In Armenia it is found in Lori, Ijevan, Shirak, Aparan, Sevan, Yerevan, Zangezur floristic regions from the lower to the middle mountain belt, in the steppes, in weedy places, along the edges of the forest, in the meadows.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in groups on lawns or open spaces in full sun, at the background of a

sunny flower border. It thrives in areas that are out in the open and warmed by the sunshine, doesn't appreciate being shaded by tall, dense planting, and favors well-drained soils. Little watering is needed in very dry conditions. *E. vulgare*is cultivated as an ornamental plant, and numerous cultivars have been developed, viz. 'Adderwort', 'Blue Devil', 'BlueThistle', 'Blueweed', 'North American Blueweed', 'Snake Flower' and others.

Lappula barbata (M. Bieb.) Gürke

Lappula barbata is an annual or biennial plant (Photo 28). Stems are straight, high, 40-60 cm in height. The leaves are narrow, lanceolate or spatulate, densely gray-pubescent. Flowers at the ends of branches in paniculate racemes. Corolla up to 6 mm long, strongly protruding from the calyx, light blue or whitish. Blooming is observed in April–June.

The species is distributed in the Caucasus, Crimea, Balkan Peninsula, Middle Asia, Anatolia, Iran, Afghanistan. In Armenia it is found in Shirak, Sevan, Yerevan, Darelegis, Zangezur, Meghri floristic regions, from the lower to the middle mountain belt, on dry stony places.

Recommendations for use in the arid ornamental landscaping and gardening: in mass plantings for creating early spring flower beds, as a ground cover or in rock gardens. It is a hardy, drought-tolerant plant, prefers full sun and well-drained soil. It can be grown from seed.

Moltkia coerulea (Willd.) Lehm.

Moltkia coerulea is a small semi-shrublet with pubescence of appressed bristles (Photo 29). Leaves are oblong-spatulate or linear-lanceolate. The flowers are in dense curls, the corolla is bright blue. Blooming is observed in May–June. The flowers attract many pollinating insects.

The native range of the species is the Caucasus, Syria, Anatolia, Iran. In Armenia it is distributed in Sevan, Yerevan, Darelegis floristic regions in the lower and middle mountain belts, in saltwort semidesert, on clayey, limestone dry slopes.

Recommendations for use in the arid ornamental landscaping and gardening: to create sunny rock gardens, slope and borders decorations, perfect for sandy clayey drought prone gardens. Deep blue flowers in spring attract many pollinating insects. Plants have the ability to grow in rock crevices and in limestone soil. Very hardy plants: tolerate harsh conditions, drought, full sun, and also low temperatures. High adaptation to difficult landscape places is noted. Plant naturally on alkaline soils, loves limestone. In cultivation, the soil should be well-drained, rocky and poor. In too rich soil, foliage grows at the expense of flowers and the plant tends to rot, especially if the soil is kept moist. Very hardy, provided the soil is well drained and stays dry.

Nonea polychroma Selvi & Bigazzi

Nonea polychroma is a glandulose biennial or perennial herb up to 35 cm, with diffuse rosette (Photo 30). Stems numerous, prostrate or ascending. Leaves are 20-30×0.3-0.6 cm, dull green, sessile. Inflorescence is elongating after flowering. Flowers are numerous, almost sessile. Calyx is tubular, 5 mm long. Corolla

patelliform, exceeding the calyx; tube yellow, straight; limb pink, turning to red and then to bleu, with bright yellow strip. Anthers are yellow, prominent from corolla tube. Nutlets are small, almost reniform. Blooming is observed in May.

The species is native to Armenia and Anatolia. In Armenia it occurs in Yerevan floristic regions, in dry stony and sandy places, at an altitude of 800–1800 m above sea level. Endangered species of Armenian flora.

Recommendations for use in the arid ornamental landscaping and gardening: for flower beds in gardens and parks, mass plantings when creating early spring flower beds, a Mauritanian-inspired lawn, as picturesque ground cover that resembles the natural beauty of Mauritanian landscapes. The inclusion of *Nonea polychroma* in the design of an arid decorative garden will increase its visual appeal thanks to its combination with natural beauty.

***Onosma sericeum* Willd.**

Onosma sericeum is a perennial plant with a silvery-gray pubescence (Photo 31). The lower leaves are elliptical or obovate, narrowed into a petiole, the upper ones are lanceolate, sessile. Inflorescence is of several whorls, whitish-yellow corolla. Blooming is observed in June–July.

It is native to the Caucasus, Anatolia, Iran, Iraq, Lebanon. In Armenia it is distributed in Upper Akhuryan, Aragats, Aparan, Sevan, Yerevan, Darelegis floristic regions, in the lower and middle mountain belts, in the saltwort semidesert, on clayey, gypsum-bearing dry slopes, in the wormwood semidesert, in the mountain steppe, in juniper woodlands, near fields and in vineyards.

Recommendations for use in the arid ornamental landscaping and gardening: to create rocky gardens, decorate hills and rocks grow well in rock garden crevices or on walls. Requires a sunny location and well-drained soil, prefers deep, fairly rich sandy loam. Tolerates hot and dry conditions, does not like humid climates at any time of the year.

***Rindera lanata* (Lam.) Bunge**

Rindera lanata is a perennial herbaceous white-silvery hairy erect plant, 20-60 cm high (Photo 32). Leaves are lanceolate to almost linear. Basal leaves with long petiole, stem leaves sessile. Flowers are in very dense, later paniculate corymbose inflorescences. Corolla pink, later turning blue, divided into linear-lanceolate lobes. Blooming observes in May–June.

It is native for South Transcaucasia, Anatolia, Iran, Iraq. In Armenia it is distributed in Shirak, Aragats, Lori, Sevan, Yerevan, Aparan, Darelegis, Zangezur, Meghri floristic regions on dry rocky slopes of the middle and mountain belts, at an altitude of 1200–2500 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds in parks and gardens. The plant needs full sun, regular watering, grow well also in part shade. Growing is possible both in open ground and in a flowerpot.

Photo 25. *Alkanna orientalis*

Photo 26. *Caccinia macranthera*

Photo 27. *Echium vulgare*

Photo 28. *Lappula barbata*

Photo 29. *Moltkia coerulea*

Photo 30. *Nonea polychroma*

Photo 31. *Onosma sericeum*

Photo 32. *Rindera lanata*

Brassicaceae

Aethionema edentulum N. Busch

Aethionema edentulum is a semi-shrublets to 35-45 cm tall with many erect unbranched stems. Leaves elongate linear 15-25×2-3 mm. Flowers large pink in rounded racemes. Pod is 8-1 mm long, wings developed along the entire length of the pods. Flowering is observed in May–June.

The species is native to the Southern Transcaucasia, North Iran. In Armenia it is distributed in Sevan and Darelegis floristic regions, in the middle mountain belt, on dry, rocky places and slopes.

Recommendations for use in ornamental landscaping and gardening: can be included in continuous flowering flower beds, to create Mauritanian lawns, rock gardens, scree gardens, rocky hills, mixborders, garden borders, well suited for group planting. It is ornamental not only during the flowering phase, but also after, until autumn, thanks to its foliage, which creates a green background for other flowering plants. Most suitable place for them is rock crevices or rock scree. It requires a sunny site. The soil should have good drainage. Seedlings are usually sprinkled with fine crushed stone. They prefer calcareous soil, but can also grow in neutral and even slightly acidic soil, excessive moisture harms them.

Aethionema pulchellum Boiss. et Huet.

Aethionema pulchellum is a semi-shrublet with a grey oblong-linnear leaves and branched stems (Photo 33). Flowers bright purple pink, collected in dense rounded clusters, petals are 2.5 times longer than the calyx, about 6 mm in length. Pod about 7 mm long. Flowering is observed in May–June.

The species is native to the Southern Transcaucasia, East Anatolia, North Iraq. In Armenia it is distributed in Sevan, Yerevan, Darelegis floristic regions, in the middle and upper mountain belts, on dry, rocky slopes.

Recommendations for use in ornamental landscaping and gardening: should be suitable for a rock garden, or for gardens with crevice and scree, for drought-type garden, in full sun, as a flowerpot plant. It is very ornamental in bloom. Normally it grows on limestone rocks. Dry, lime, calcareous or sandy, well-drained soil is suitable for growing. Attracts honey bees. Propagate by seeds or softwood cuttings in early summer.

Alyssum trichostachyum Rupr.

Alyssum trichostachyum is a perennial plant, pubescent with star-shaped hairs, woody at the base (Photo 34). Stems are straight or ascending, 20-50 cm in height. Leaves are obovate-oblong, stem lanceolate. Sepals are 2.5-3 mm long, pubescent with long, erect simple hairs. Petals are notched, golden yellow or white, 4.5-6 mm long, 3-3.5 mm wide, obovate, marigold. The fruit racemes are elongated, 15-30 cm long, the pods are round or round-elliptical. Blooming is observed in May–June.

The native range of the species is the Caucasus, Balkan Peninsula to North-West Iran. In Armenia it is distributed in Upper Akhuryan, Aparan, Darelegis floristic

regions, from middle to upper mountain belts, on dry, rocky slopes, along the forest edges.

Recommendations for use in ornamental landscaping and gardening: effective in planting on rocky hills, in rock gardens, in scree gardens, in mixborders, when planting south-oriented retaining walls. The grayish-green color of the leaves harmoniously combines with the yellow flowers. It is good to combine in plantings with shorter and creeping plants. Unpretentious, photophilous and drought-resistant, in the south they tolerate light partial shade. Prefer light, neutral or slightly alkaline, non-damp soils containing organic fertilizers. Propagate by seeds, division and cuttings. Seeds are sown in open ground immediately after collection or in the spring. *Alyssum* is universally known in cultivation.

Arabis caucasica **Willd.**

Arabis caucasica is perennial mat-forming plant 10-40 cm in height, to 20-60 cm across, with gray-white tomentose pubescence (Photo 35). Stems well leafy, simple or weakly branched. Leaves grey-greenish, elongate, 3-10×1-4 cm, basal leaves oblong, serrated or entire, stem leaves cordate-stem-encompassing. Flowers are about 1.5 cm in diameter, in dense racemes, petals white or yellow. Blooming observes in May–July.

The species is native for the Caucasus, Europe, Anatolia, Iran, Syria, Middle Asia. In Armenia it is distributed in all floristic regions in on the rocks and stony slopes at an altitude of 1700–3200 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for alpine garden, border, ground cover, rock garden, scree garden. It is easily grown in ordinary well-drained soil, succeeds in partial shade though it tends to become straggly. Established plants are very tolerant of drought and grow very well on a dry bank, they also succeed when grown in walls. Suitable for light (sandy), medium (loamy) and heavy (clay) soils, prefers well-drained soil and can grow in nutritionally poor soil. It is a good ground cover plant for sunny positions, forming a carpet. Can be propagated by division (spring or autumn) or cuttings (summer).

Crambe orientalis **L.**

Crambe orientalis is a perennial herbaceous plant with strongly branched stems (Photo 36). Stem 30-80 cm tall, smooth, angular below, glabrous; leaves are large, oval or oblong in outline, 14-30 cm long, 8-26 cm wide, densely appressed, shortly rigidly pubescent on both sides, petioles 3-20 cm long; the lower leaves are entire, the rest are incorrectly pinnately lobed or lyre-shaped. Inflorescence leafless, branched, flowers white, petals 4-5 mm long. Blooming is observed in (May) June–July.

The species is distributed in the Caucasus, West Asia. In Armenia it occurs in Shirak, Lori, Aparan, Sevan, Gegham, Yerevan, Darelegis, Zangezur floristic regions, on dry slopes, fields, cultivated places, at an altitude of 800–2200 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds and garden beds, for planting on lawns or open spaces, for the formation of borders, to create a Mauritanian lawn. It can grow on sandy, loamy and clay soils, in nutritionally poor neutral and mildly alkaline soils. Species an easily

grown, succeeding in an open sunny position. Propagation by seeds or by division in spring or autumn.

Fibigia macrocarpa (Boiss.) Boiss.

Fibigia macrocarpa is a perennial plant 20-50 cm tall densely stellate pubescens. Stems simple, leaves narrowly linear, entire, rigid. Flowers yellow. Pods densely pubescent, round or broadly elliptic, 21-28×15-22 mm. Seeds with a wing 2-5 mm wide, flat-compressed. Blooming observes in May–July.

It is native for the Caucasus (Transcaucasia), South-West Asia. In Armenia it is distributed in Aragats, Yerevan, Darelegis floristic regions in the middle mountain belt, on dry rocky slopes, at an altitude of 1400–2300 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create rocky gardens, decorate hills and rocks, in scree gardens, in home gardens, naturalistic and romantic gardens, in rustic flowerbeds and natural garden areas. The plant is valued not only for its flowers, but also for its original translucent mother-of-pearl fruits, indispensable in dry bouquets. *Fibigia macrocarpa* has medium watering requirements. It prefers the soil to become dry between waterings, suitable for light sandy, loamy and clay soils and prefers well-drained soil. Seeds can be sown in autumn or in early spring of next year.

Hesperis matronalis L.

Hesperis matronalis is a biennial or perennial plant 30-120 cm tall, with erect branched shoots roughly haired and fusiform root (Photo 37). Leaves lanceolate with short petioles, covered with simple hairs, sometimes with an admixture of glandular hairs. Rasemose loose inflorescence consistof fragrant small flowers, double or simple. Flowers are pink or lilac to white, petals 13-22 mm long. Blooming observes in May–July.

The species is native to the Caucasus, Central Asia, Central Europe, eastern Mediterranean, Middle Asia, Europe, Western Siberia and Central Asia. In Armenia it is distributed in all floristic regions in forests, bushes, meadows, rocky slopes at an altitude of 800–2400 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds in gardens, it looks most impressive in large groups, in a cottage garden or wildlife garden scheme. It is self-seeding plant and thrives on its own and spreads swiftly to open areas in gardens. The Latin word hesperis refers to evening, the time when the flowers emit a fragrance. And matronalis comes from the Roman festival, Matronalia, a celebration of the goddess Juno.

Lepidium propinquum Fisch. et C.A. Mey.

Lepidium propinquum is a perennial herbaceous short hairy plant. Stems are 20-50 cm in height, spreadingly branched at the top. Basal radical leaves ovate-lanceolate to obovate, cauline leaves ovate-elliptic to oblong-lanceolate. Inflorescence is raceme corymbs, usually terminal, many flowered. Flowers are cream white, petals 4, triangular-obovate. Fruit is silicula, indehiscent, ovate or suborbicular. Blooming is observed in May–July.

Native range of the species is the the Caucasus, South-East Europe, West Asia. InArmeniait is distributed in Lori, Sevan, Yerevan, Zangezur, Meghri floristic regions, on dry slopes, cultivated lands, at an altitude 800–2200 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create a Mauritanian lawn. Plant prefers a sunny position on drainage soils. Propagated by seeds.

Neotorularia torulosa (Desf.) I. Hedge et J. Leonard

Neotorularia torulosa is an annual plant with stems 5-30 cm in height (Photo 38). Leaves narrow, form a rosette. Petals are white or creamy, 2.5-3.5 mm in length. Fruiting pedicles up to 1 mm. Flowering is observed in April–May.

The global range of the species includes the Caucasus, Mediterranean, Crimea, West, Middle, Central Asia. In Armenia it is distributed in Yerevan and Meghri floristic regions, in the lower mountain belt, on dry clay slopes, at an altitude of 400–900 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create a Mauritanian lawn. It is known to attract butterflies. Plants of *Neotorularia torulosa* are resistant to alkalis and salts and contain a small amount of water. It can be propagated by seed. The seeds should be sown in a well-drained soil. The plant prefers full sun.

Campanulaceae

Campanula rapunculoides L.

Campanula rapunculoides is a perennial herbaceous plant from 30 to 100 cm in height (Photo 39). The roots are powerful, deep into the soil, with lateral branches. Stem is erect, ribbed, hollow. The whole plant is covered with stiff short hairs. Basal and lower stem leaves are long-petiolate, oblong, cordate-ovate, middle stem leaves are ovate, upper ones are lanceolate, sessile. The inflorescence is a long one-sided raceme. The flowers are light or dark purple, from 1.5 to 3.5 cm long, the corolla is ciliated along the edge, sepals are bent back. Blooming is observed in June to July.

The species is distributed in the Caucasus, Europe, Western Siberia, Middle Asia (north), Anatolia, Iran, North America (adventive). In Armenia it is found in all floristic regions, in fields, gardens, forests, crops, along roads, in river gorges, in subalpine meadows, at an altitude of from 650 to 2700 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds in gardens and parks, rock gardens, can be used in mixed plantings, long-range plantings, flower beds of continuous flowering, mixborders, as cutting plant for bouquets. It blooms for a long time in culture. After cutting, young shoots bloom even in October. It is easily grown in medium moisture, well-drained soil in full sun to part shade. The plant prefers part shade in hot summer climates, needs regular moisture. It is undemanding to soils, but develops better on well-cultivated, with sufficient nutrition, neutral or slightly alkaline soils. It can not plant them in areas flooded with rain or spring waters. The plant is unpretentious, resistant

to cold, diseases and pests. Propagation by seeds, basal cuttings in spring, division in spring or autumn.

Campanula sibirica L. subsp. *hohenackeri* (Fisch. et C.A. Mey.) Damboltd

Campanula sibirica L. subsp. *hohenackeri* is a biennial herbaceous plant, 15-60(80) cm tall, with numerous ascending stems (Photo 40). The lower leaves are spatulate, oblong-ovate or broadly lanceolate, middle and upper sessile, oblong-spatulate or lanceolate. Flowers are colletedin a paniculate many-flowered inflorescence. Seeds are oblong-elliptical. Flowering is observed in May–June.

The species is found in the Caucasus, Anatolia, Iran. In Armenia it is distributed in Shirak, Lori, Ijevan, Aparan, Sevan, Darelegis, Zangezur, Meghri floristic regions, in the lower, middle and upper mountain belts, in the mountain steppe, meadows, forest clearings, dry rocky slopes, from 500 to 2300 above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create rock gardens, decorate hills and rocks. It can be used in mixed plantings, long-range plantings, continuous flowering flower beds, mixborders. Soils such as loam, sand or clay are suitable for cultivation. Prefer cool summers but can survive high temperatures if watered regularly. Propagation is by seed in winter or spring, by division in early autumn or spring and by basal cuttings of non-flowering shoots in late spring or early summer.

Campanula stevenii M. Bieb. subsp. *beauverdiana* (Fomin) Rech. fil. et Schiman-Czeika

Campanula stevenii subsp. *beauverdiana* is a perennial plant with stem 10-15 cm tall, slightly leafy, leaves lanceolate, crenate (Photo 41). Flowers per stem are 1-3(4), corolla bright blue. Blooming is observed in May–June.

It is native to the Caucasus, Anatolia, Iran. In Armenia it is distributed in Shirak, Aparan, Sevan, Gegham, Yerevan, Darelegis, Megrhi floristic regions, in the lower and middle mountain belts, in the mountain steppe, on stony places, at an altitude of 1000–2400 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create rock gardens, decorate hills and rocks, in the flower lawn. Plant prefers fertile soils, light-loving. Propagation is by seed, by division in early autumn or spring and by basal cuttings of non-flowering shoots in late spring or early summer.

Photo 33. *Aethionema pulchellum*

Photo 34. *Alyssum trichostachyum* Rupr.

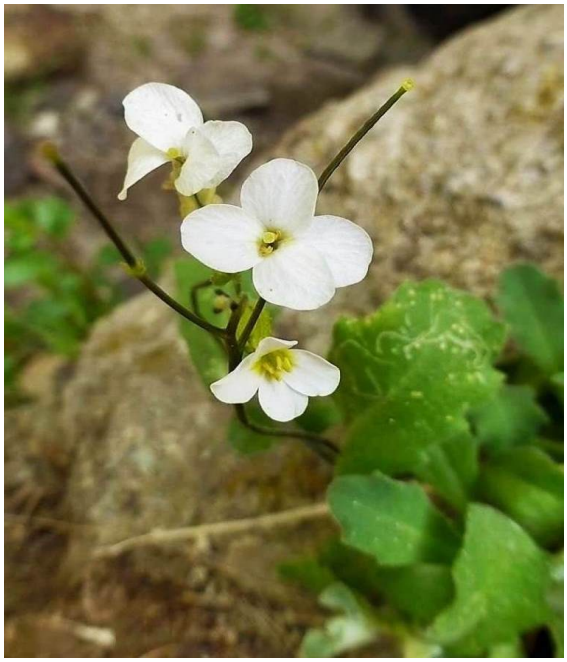

Photo 35. *Arabis caucasica*

Photo 36. *Crambe orientalis* surrounded by *Consolida orientalis*

Photo 37. *Hesperis matronalis*

Photo 38. *Neotorularia torulosa*

Photo 39. *Campanula rapunculoides*

Photo 40. *Campanula sibirica* ssp. *hohenackeri*

Photo 41. *Campanula stevenii* subsp. *beauverdiana*

Capparidaceae

Capparis herbacea L.

Capparis herbacea is as emishrub plant with thick caudex and prostrate stems up to 3 m long, many-branched, with thick and shiny alternate leaves, round or ovate (Photo 42). The flowers with four sepals and four white to pinkish-white petals, many long violet-colored stamens, and a single stigma usually rising well above the stamens. Fruit is greenish with red flesh. Blooming is observed in June–July.

Native range of the species is the Caucasus, Southern Europe, Mediterranean, Balkan Peninsula, Anatolia, Iran, Middle and Central Asia. In Armenia it is found in Shirak, Yerevan, Darelegis, Meghri floristic regions, on the lowlands, in the foothills to the middle mountain belt, semideserts, phrygana, in saline places, clay slopes, up to 1600 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create rocky gardens, decorate hills and rocks, as an ampelous and ground cover plant. Species is heat loving, which makes it suitable for growing in large pots, greenhouses or in well-lit areas. Plant is commonly grown in the hot and dry conditions, in sharp drainage soils with limited water, tolerate salinity. High light intensity should be provided. It is propagated from seed and cuttings. The seeds should be sown when fresh, as seeds that have been stored require scarification and cold stratification to germinate.

Caryophyllaceae

Dianthus libanotis Labill.

Dianthus libanotis is aperennial herbaceous plant, 25-60 cm tall. Leaves rigid, spiny. Bracteoles 4-6, prostrate or reflexed in thorny cusp. Calyx is 30-40 mm long. Petals white, with red spot at base, up to ½ dissected into filiform lobes. Flowers are with strong fragrance. Flowering is observed from July to August.

The species occurs in South Transcaucasia and South-West Asia. In Armenia it is found in Yerevan and Darelegis floristic regions, in lower mountain belt, in the semideserts, among phryganoid vegetation, on dry stony and clay slopes, at the altitudes of 800–1400 meters above sea level. Endangered species of Armenian flora.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds in gardens, to create rock gardens, decorate hills and rocks, as garden borders, in mass plantings, in rock garden retaining walls, and as a ground cover. Needs very well-drained soil in an open sunny situation, can grow on clay soils. It is propagated by seeds or by division the mature plants. For rooting cuttings, a soil made from a mixture of peat and perlite is suitable, which retains moisture very well. Cuttings, taken between June and September will root quickly and make strong plants the following year.

The name *Dianthus* is from the Greek words Dios ("of Zeus") and anthos ("flower"), and was cited by the Greek botanist Theophrastus. Since 1717, *Dianthus* species have been extensively bred and hybridised to produce many thousands of cultivars for garden use and floristry, in all shades of white, pink, yellow and red, with a huge variety of flower shapes and markings.

Gypsophylla bicolor Freyn et Sint.

Gypsophylla bicolor is an annual plant with a height of 50 to 100 cm (Photo 43). Stems erect, branched from the base, glabrous bluish. Leaves are lanceolate, 4-6 cm long and 5-17 mm wide, pointed, with a prominent midrib and inconspicuous 2-4 lateral veins. Flowers are dioecious-polygamous, in a wide spreading inflorescence. Pedicels are 5-10 mm long. Calyx campanulate, half dissected. Petals 1.5-2 times longer than the calyx, white. Capsule is spherical-ovoid. Blooming observes in May–August.

It is native to the Caucasus, North-East Turkey, Middle Asia, Iran.In Armenia the species is distributed in Yerevan and Zangezur floristic regions, on dry slopes, at an altitude of1000–1700 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for planting on lawns or open spaces, for rockeries, for cottage gardens. In landscaping schemes some of countries it is grown in gardens as an ornamental plant. *Gypsophylla bicolor* is hyper accumulators of boron, and may be planted to absorb the element from polluted soils. It is demanding to gypsum-rich soils, grows well on clay and loamy soils, neutral reaction. Propagated by seeds.

Gypsophylla elegans M. Bieb.

Gypsophylla elegans is an annual glabrous plant, branched from the base or in the upper half, 20-50 cm tall. Leaves are thick, lower oblong-lanceolate, middle and upper lanceolate or linear-lanceolate, 2-4 cm long and 3-4 mm wide, with one vein. Inflorescence is loose panicle. Calyx broadly campanulate, glabrous, 3-3.5 mm long, dissected to the middle. Petals pink with purple-colored veins, 2-3 times longer than the calyx, rounded or notched above. Blooming is observed in June–July.

The native range of the species is the the Caucasus, Anatolia, Iran, invasive in Europe. In Armenia it is distributed in all floristic regions, from lower to upper and subalpine belts, on rocky slopes and in crops.

Recommendations for use in the arid ornamental landscaping and gardening: to create rock gardens, for borders, for cottage gardens. It is suited to both beds and balcony pots, as a cut flower, in flower arrangements and bouquets, as well as for drying. It is propagated by seed, sown from March to June in a sunny location in good garden soil. Plant begins to bloom within 1.5 months after sowing.

Gypsophylla hetepoda Freyen

Gypsophylla hetepoda is an annual plant with a height of 8 to 20 (25) cm (Photo 44). The stems are branched in the upper internodes, often sticky. Leaves are lanceolate-linear or linear, 1.5-3.5 cm long, 2-4 mm wide, with one or three indistinct veins. Flowers are white, in loose inflorescence on filiform pedicels, 3-20 mm long. Capsule is 1.5 times longer than the calyx, the seeds are smooth. Blooming observes in April–June.

It is native to the Caucasus, North-East Anatolia, Middle Asia, Iran.In Armenia the species is distributed in Yerevan, Darelegis, Zangezur, Meghri floristic regions, occurs on clay, gypsum-bearing, rocky slopes, on sands, at an altitude of 600–1400 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in groups on lawns or open spaces, for rockeries, for white and gravel gardens, for cutting gardens, for flower arrangements and bouquets. In landscaping schemes some of countries it is grown as an ornamental plant. It is demanding to gypsum-rich soils, grows well on clay and loamy soils.

Gypsophylla szovitsii Fisch et C.A. Mey. ex Fenzl

Gypsophilla szovitsii is perennial herbaceous plant 25-40 cm in height. The stems herbaceous at the base, solitary or strongly branched, with horizontally located thin, long branches, below, together with the leaves, covered with very small glands. The leaves are opposite, entire, thick, narrowly linear, sharp, up to 3.5×0.5-2 mm. Flowers a spreading inflorescence. Bracts are linear-subulate, herbaceous. Calyx is campanulate, 2 mm long, dissected towards the middle into obtuse teeth with white edges along the edge. Petals light pink, 1.5-2 times longer than the calyx, toothed, stamens 10. Blooming is observed in May–June.

Ths species is native for the Caucasus, Western Iran. In Armenia it is distributed in Yerevan floristic region, on dry slopes, on gypsum hills and in steppes, at an altitude of 900–1900 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for creating rocky gardens, decorating hills and rocks, serves as an addition in flower beds, suitable in the design of bouquets of flowers, giving them transparency and lightness. The plant is propagated by seeds. The soil should be well permeable. The care is reduced to watering and periodic feeding. Positive quality of gypsophila is its resistance to cold. *Gypsophila* prefere a well-lit area, although in shading the plant will grow well too. The soil for planting should be well drained, nutritious and contain lime.

Silene italica (L.) Pers.

Silene italica is a perennial white-tormenting plant, high from 30 to 60 cm; the stem is erect, branchy, delicate, pubescent-viscous (Photo 45). The basal leaves are spatulate, the minor, linear caulines. The inflorescence is broad and sparse with white flowers. Corolla without appendages, white at the base, with a 1/2 incised lamina. Calyx is18-21 mm long, cylindrical. Blooming observes in June–July.

It is native to the Caucasus, Turkey, Eastern Mediterranean, Northern Iran, Central Asia, North Africa and the whole of Europe with the exception of north and north-western Europe.In Armenia the species is distributed in all floristic regions except Uper Akhuryan andAragats, occurs in hedges as well as open woodlands, phrygana at an altitude of 900–1800 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for rockeries, for planting in groups on lawns or open spaces. In landscaping schemes some of countries it is grown in gardens as an ornamental plant. It is relatively undemanding to soils, grows well on clay and loamy soils, neutral or slightly acid reaction. It is advisable to do sowing in soil compost, covered with fine sand. Germination is more successful after winter stratification of seeds. it prefers well-drained soil and full sun to partial shade. The plant can tolerate some drought, making it a great choice for gardens in arid regions.

Tunica saxifraga (L.) Scop.

Tunica saxifraga is perennial plant with numerous, paniculately branched, woody stems below, up to 50 cm in height. Leaves are narrowly linear, acute, 4-12 mm long and 0.5 mm wide. The flowers are small, in rare semi-umbels. Calyx is campanulate, up to 4.5 mm long, 2 mm wide, pentahedral, with blunt teeth. Petals are pink or white, almost twice as long as the calyx. Seeds are oblong-oval, dark brown. Blooming is observed from June through October.

The native range of the species is the Caucasus, Central and South Europe to Iran. In Armenia it is distributed in Lori and Ijevan floristic regions, from the lower to the middle mountain belt, on rocky and sandy places.

Recommendations for use in the arid ornamental lanscaping and gardening: for cultivation in rock gardens and used along borders, to grow in lawns, along roadsides, along shorelines, and in other sandy disturbed areas. It is best grown in medium moisture, well-drained soils in full sun. Performs well in rocky or sandy soils, tolerates poor soils. Shallow root systems dry out quickly and appreciate a mulch to help retain soil moisture. Aggressively self-seeds in the landscape. When flowering stops, plants may be cut back to encourage an additional bloom that may last into fall.

Chenopodiaceae

Atriplex hortensis L.

Atriplex hortensis is an annual plant (30)50-100(200) cm tall with a straight green glabrous stem. The leaves are one-color, green on both sides, glabrous, thin, triangular-lanceolate, irregularly serrated, lobed, upper oblong to triangular, mostly entire. Bracts in fruit are round-ovate, with a length equal to the width, blunt at the apex, slightly heart-shaped at the base. Monoecious plant. Blooming is observed in June–August.

The species is native to the Caucasus, Asia Minor. Cultivated in Eurasia. In Armenia it is found in the Yerevan floristic region, in ruderal places, at an altitude of 1000–1200 mabove sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create a Mauritanian lawn, for plantings in saline areas, for small groups, borders, forming dense walls or live screens when decorating inconvenient places. Plants in fruits can be used for arranging dry bouquets. *Atriplex hortensis* is grown as an ornamental plant with abundant mass of green leaves. Valued especially for cultivars the bronze or red leaves of selected cultivars and for its seedpods, which are used as dried floral decorations. It can be cultivated in average, well-drained soil, tolerates soil salinity. Plant is tolerant to hot and cold extremes. Propagation by seeds, sowing in autumn or early spring. Germination is usually good and rapid. *Atriplex* in culture since the 16th century, in ornamental gardening 9 species are used.

Caroxylon dendroides (Pall.) Tzvelev

Caroxylon dendroides is a light green, paniculate branchy semishrub with woody caudex (Photo 46). Shoots 80-120 cm in height, only annual, drying off at

base. Fruits with whitish-cream shiny wings. Seed 1.4 mm in diam. Blooming is observed in (July) August–September.

The species is native to the Caucasus, South-East Russia, North-East Anatolia, Iran, Middle Asia. In Armenia it is distributed in Yerevan, Zangezur, Meghri floristic regions, on the slightly salty clayey soils, solonchaks, waste places, at an altitude of 550–1650 m above sea level.

Recommendations for use in the arid ornamental gardening and landscaping: for late autumn flower beds, decorate dry hills and rocks, in plantings in saline and clayey areas. Propagated by seeds, seedlings appear the next year after autumn sowing.

Chenopodium foliosum Aschers.

Chenopodium foliosum is an annual plant with a straight stem 15-20(50) cm tall (Photo 47). The leaves are green, oblong-rhombic, spear-shaped or triangular, deeply notched-toothed. Flowers in dense globular axillary glomeruli. Perianth in fruits is fleshy, strongly overgrown, dark red, berry-like. Blooming is observed in May–July.

The species is native to Eurasia, it can be found on other continents as an introduced plant. In Armenia it is distributed in Shirak, Aragats, Lori, Aparan, Sevan, Yerevan, Darelegis, Zangezur floristic regions, in rock crevices, on stony dry slopes, along roads, in pastures, in open forests, in waste places, at an altitude of 1000–1600 mabove sea level.

Recommendations for use in the arid ornamental gardening and landscaping: the plant has a longdecorative effect due to gradually ripening bright fruits, it is used for garden compositions in a natural style, ornamental gardens, container plantings, for cutting. The plant is quite drought-resistant and heat-resistant, frost-resistant, withstands frost. *Chenopodium foliosum* grows well on neutral, slightly alkaline soils with a light mechanical composition, on calcareous or slightly saline soils. Propagated by seeds, needs regular watering.

Climacoptera crassa (M. Bieb.) Botsch.

Climacoptera crassa is a green or dove-colored annual 10-50 cm high with fleshy, decurrent leaves (Photo 48). Fruits are with wings 10-18(20) mm in diameter, yellow or pink, later light-brown. Blooming is observed from July to early September.

The native range of the species is the Caucasus, East Europe, West and Middle Asia. In Armenia it is distributed in Yerevan, Zangezur, Meghri floristic regions, on solonchaks, mainly dry, at an altitude of 700–900 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: in plantings in saline areas, for late autumn flower beds, gravel gardens, dried flower bouquets. In culture, it can grow on areas with saline and clay soils. It is propagated by seeds.

Hablitzia tamnoides M. Bieb.

Hablitzia tamnoides is a long-lived perennial herbaceous scandent plant 100-250 cm tall 4with thick fleshy root (irregularly shaped subterranean tuber) (Photo 49). Leaves thin, deeply cordate, long petiolate. Flowers are green, stellate spreading.

Inflorescences are slender, arising from leaf axils. Seeds are horizontal, black, shiny, smooth, 1.0-1.5 mm in diameter. Blooming is observed from June to August.

The species is distributed in the Caucasus, North-East Anatolia, North-West Iran. There are also supposed relict populations and individual plants found throughout Scandinavia, which may also be the result of the introduction. In Armenia it is found in all floristic regions, except Upper Akhuryan, Shirak and Gegham, in shady places, among rocks, in woods, at an altitude of 1000–1600 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for vertical landscaping hedges, arbors, verandas from the shady side, as well as tall trunks of trees. *Hablitzia* is a beautiful, ornamental climbing vine with abundant, small flowers and nicely shaped leaves. Plant likes half shade and moist soil, but are resistant to short drought, very cold-hardy. It is desirable to use a support for climbing shoots. It is propagated by seeds, cuttings and by dividing of fleshy roots. Seeds need about 4-5 weeks of cold stratification to germinate.

***Seidlitzia florida* (M. Bieb.) Bunge ex Boiss.**

Seidlitzia florida is an annual plant 10-50 (60) cm high with shoots opposite, white or yellowish (Photo 50). Leaves are 10-16 mm long, crosswise opposite, succulent, terete, in axils with 1or 3(4) flowers. Fruits with purple-pink or red wings. Blooming is observed from June to early September.

The species is native to the Caucasus, East Anatolia, Iran, North-West Pakistan, North Iraq. In Armenia occurs in Yerevan and Meghri floristic regions, on gypsiferous red and yellow clays, dry solonchaks, on slightly salty, sandy areas, at an altitude of 700–1100 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: in plantings in saline areas, for late autumn flower beds, for gravel gardens, dried flower bouquets. It is propagated by seeds.

Photo 42. *Capparis spinosa*

Photo 43. *Gypsophyla bicolor*

Photo 44. *Gypsophyla heteropoda*

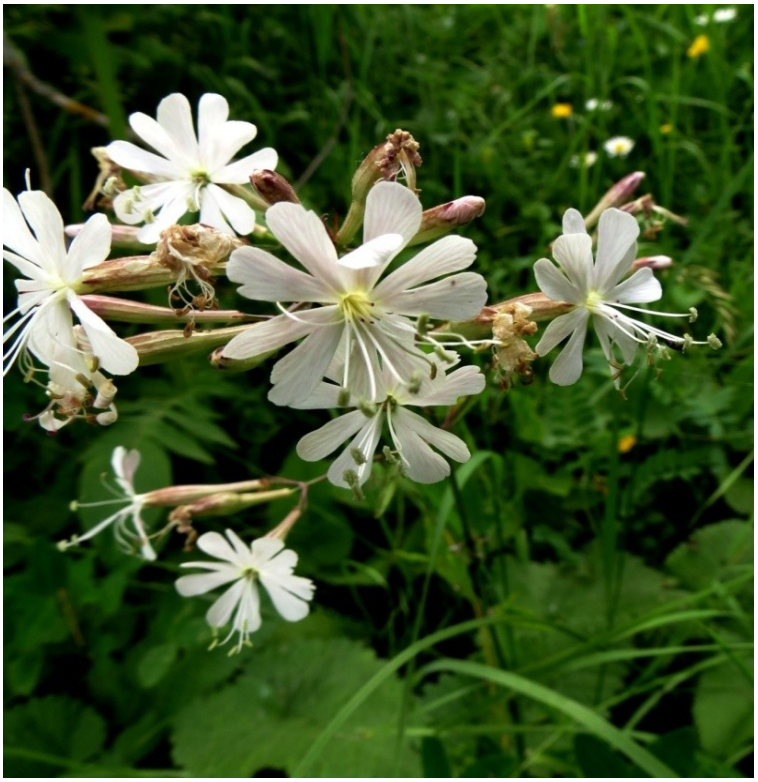

Photo 45. *Silene italica*

Photo 46. *Caroxylon dendroides*

Photo 47. *Chenopodium foliosum*

Photo 48. *Climacoptera crassa*

Photo 49. *Hablitzia tamnoides*

Photo 50. *Seidlitzia florida*

Colchicaceae

Merendera sobolifera Fisch. et C.A. Mey.

Merendera sobolifera is a perennial herbaceous stolony-forming plant. Leaves are usually 3, linear-lanceolate, 8-15×1-2 cm, crenate (Photo 51). Corn is 5-15 mm in diameter, cylindrical, spherical-ovate with light-brown scales. Flowers are 1(2), whitish-pinkish. Seeds are numerous, 2-2.5 mm long, oval, brown. Blooming is observed in end of March – April, immediately after the snow melts. Flowers appear before leaves.

The species is distributed in the Caucasus, Bulgaria, Romania, Syria, Anatolia, Iran, Central Asia (mountainous Turkmenistan), Afghanistan, Pakistan. In Armenia it is found in Yerevan floristic region, in the foothills and the lower mountain belt, on salt marshes, on damp wet meadows, at an altitude of 700 – 1000 m above sea level. It is included in the Red Book of Plants of Armenia under the category Critically endangered species.

Recommendations for use in the arid ornamental landscaping and gardening: to create rocky gardens, decorate hills, for mass plantings in early spring flower beds, in plantings in saline areas. With stands partial shade and shade, but it develops very slowly in such places. It can be recommended for rock gardens and rocky hills, especially decorative in mass plantings and early spring flower beds. Occurs in culture relatively more often than other species of *Merendera*. Forms stolons with daughter rosettes, propagated by seeds and vegetatively.

Merendera trigyna Woronow

Merendera trigyna is a perennial stemless herbaceous bulbous plant (Photo 52). Leaves 3(4), oblong-lanceolate. Scales of corms rough, leathery, black. Flowers 1-3(5), funnel-shaped, from light pink to dark pink-lilac, late flowers are white. Stamens 6, anthers light yellow or grayish yellow. Capsule ovoid, brownish or brown. Seeds spherical-angular. Blooming is observed in (February)March–April.

It is occurring in all regions of the Caucasus, in Anatolia, Iran. In Armenia it is distributed in all floristic regions, in lower, middle and upper mountain belts on dry rocky slopes, wormwood semidesert, vineyards, gardens, mountain steppe, at an altitude of 800–2000 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for various early spring floral arrangements, in mass plantings for creating early spring flower beds, to create alpine gardens, decorate hills and rocks. It is better to grow on more or less dry drained places. Propagated mainly by seeds. Sow in autumn or in boxes in winter. Plants grown from seeds, bloom for about 3-4 years. Flowering is very early, at low positive temperatures, about 20 days. Frost-resistant down to minus 18°C. It is unpretentious and frost-resistant, prefers sunny places and is not afraid of drought. *Merendera trigina* is quite light-requiring, but it develops quite successfully in partial shade. *Merendera trigyna* in culture since 1823. Along with *Merendera sobolifera* is found in culture more often than other *Merendera* species.

Convolvulaceae

There are about 250 species in the genus *Convolvulus*, almost cosmopolitan, most species are found in the Mediterranean. *Convolvulus* representatives are in culture since the beginning of the 17th century. In ornamental gardening 17 species are used, very widespread and ubiquitous. Frost- and drought-resistant plants, easy care.

Convolvulus lineatus L.

Convolvulus lineatus is a perennial plant 3-15 cm tall, slightly branched, densely, appressed, silvery hairy (photo 53). Leaves are elliptic to linear-oblong and oblanceolate, almost sessile. Inflorescences are small, compact on very short stems, up to 5 mm long, corolla white or slightly pinkish, 15-25 mm long. Flowering is observed in May-June.

It is characteristic of all regions of the Caucasus, Central and Southern Europe, Anatolia, Iran, Western Siberia, Central Asia, Afghanistan and Pakistan. In Armenia it is found in all floristic regions, from the lower to the middle mountain belt, among phryganoidsto steppe vegetation, in forests, on alpine screes, up to 3000 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds and garden beds, for rocky hills decoration, for arranging borders, mixborders, rock gardens, for creating bright color spots on the lawn, for containers. Suitable for carpet beds, in compositions, as a ground cover and decorative leafy plant, as well as an element in undersized flower beds of continuous flowering. It forms dense tufts, with silky pubescent silvery decorative foliage and numerous beautiful flowers. Photophilous plant, flowers bloom early in the morning, react sharply to low light. It is recommended to plant in sunny, open areas protected from cold winds, very drought tolerant. Requires good drainage, does not tolerate prolonged waterlogging and stagnant water on heavy soils. Not picky about fertility, grows well in any cultivated areas, prefers not too acidic, more or less fertile loam, retains its decorative effect on poor and calcareous soils. Propagates by seeds and vegetatively by division.

Crassulaceae

The genus name *Sedum* comes from the Latin "sedo", which means "to sit". As garden and greenhouse specimens, sedums became popular from the early 20th century, but were used by collectors as early as the 19th century. Most *Sedum* representatives are bred primarily for their ornamental leaves, although some species combine both beautiful flowers and elegant leaves. *Sedum* spesies, naturally accustomed to rocky and dry soils, look very organic in all gardens that involve the presence of stones. The best place for sedums is rockeries, where their beauty is especially evident against the background of stones. Tall species are successfully used in mixborders and groups. Ground cover sedums are used in the design of flower beds, they create a beautiful carpet. Sedum do best in full to part sun. While taller species and hybrids need full sun to flower their best, creeping species will grow succesfully in part shade. Sedums like a very well-drained soil with a neutral to slightly alkaline pH.

Sedum hispanicum L.

Sedum hispanicum is an annual succulentplant (Photo 54). Stems usually simple, much-branched, 5-15 cm long. Leaves fleshy blue-green alternate, linear, rounded, 6-12×2 mm. Inflorescence corymbose with 2-4 spike-like branches. Flowers usually 6-merous, in unilateral cymes. Sepals are ovate-acute. Petals white, with a purple midrib, 5-7 mm, lanceolate, acuminate. Blooming is observed in April–July.

The species is distributed in the Caucasus, Central and East Europe, Mediterranean, Crimea, Anatolia, Iran. In Armenia it occurs in all floristic regions, ondry, gravelly places, on rocks, at an altitude of 500–2400 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create rocky gardens, decorate hills and rocks, for carpet beds and rocky hills decoration, for miniature rockeries that are gradually coming into fashion, which are created in small containers, best of all stone or wooden. It is widely distributed in culture as an ornamental groundcover plant, as it forms dense mats when growing. Preferably it grown in full sun, drought and winter frost tolerant. A pinkish tint appears in the bright sun, and with increased soil fertility, the leaves become completely green. It grows best in well-draining soil, can be easily propagated by stem and leaf cuttings. Watering prefers moderate, like other succulent plants.

Sedum oppositifolium Sims.

Sedum oppositifolium is a perennial plant up to 15 (20) cm in height (Photo 55). Petals pale yellow or white, 10-15 mm long. The stems in the lower part are creeping, ascending, shortly pubescent or almost naked. Leaves 2.5 cm long, up to 1.5 cm wide, ciliated along the edge. Mature fruitlets sticking up. Flowering is observed in July–September.

The species native range is the Caucasus, Anatolia, Iran. In Armenia occurs in all floristic regions, from the middle mountain to the alpine belt, on illuminated rocky slopes, in rock crevices, on gravelly meadows, at an altitude of 800–3400 m above sea level.

Recommendations for use in arid ornamental landscaping and gardening: for carpet plantings, borders, in flower beds and rocky gardens, for landscaping slopes. Suitable for growing in any part of the rock garden, including retaining walls and tiled paths. Propagated by division of bushes and rhizomes, cuttings, rarely seeds. Very unpretentious appearance, perfectly tolerates shading. Drained, fertile, normally moist soils are suitable for it. Winter hardy. Does not require special care. *Sedum oppositifolium* grows quickly, but does not turn into a weed.

Cucurbitaceae

Bryonia alba L.

Bryonia alba is a climbing herbaceous perennial with tendrils (photo 56). Leaves on long petioles, five-lobed, serrated along the edge, with a rough surface, up to 10 cm long. Leaf blades with tubercles at the base. Flowers unisexual, yellowish-white. Pistillate flowers are collected in corymbose or umbellate inflorescences.

Stamen flowers in racemes located at the top of the stem. Fruits are spherical 7-8 mm in diameter, red. Blooming is observed in May–June.

The species native range is the Caucasus, North and Middle Europe, Balkans, Anatolia, Iran, Middle Asia. In Armenia it is distributed in Shirak, Lori, Ijevan, Aparan, Sevan, Yerevan, Darelegis, Meghri floristic regions, in the bushes, along the hedges, at an altitude 800–1500 mabove sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for vertical landscaping. Liana is valued primarily for foliage and bright red fruits that form in the second half of summer. Prefers to grow in well-drained, moist, lime-rich soils. The landing site is preferably shaded, but it is also possible in open sunny areas with regular watering. Suitable for landscaping arbors, walls of buildings and hedges. Often planted next to trees, the shoots tightly braid the trunks, which looks very decorative. In the fall, the lashes are cut off, because the ground part does not hibernate, which does not create oppression of supporting plants.

Dipsacaceae

Scabiosa bipinnata K. Koch

Scabiosa bipinnata is a perennial herbaceous plant 20-50 cm tall (Photo 57). Cauline leaves 2-pinnatisect, with narrow linear lobes. Flowers are white or yellow. Capitula is in fruits almost globose. Blooming is observed in June–August.

The species is distributed in the Caucasus, Anatolia. In Armenia it is found in all floristic regions, except Upper Akhuryan and Meghri, in steppe, meadows, forest, at an altitude of 1400–2400 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds and gardens, for planting in groups on lawns or open spaces, for flower beds in natural style, for cutting. It is necessary to carefully water the soil, avoiding watering leaves and flowers. The plant needs intense sunlight for more than 6 hours a day.

Scabiosa columbaria L.

Scabiosa columbaria is a perennial herbaceous plant. Stem erect, slightly branched in the upper part, (20)40-100 cm tall. The leaves of the basal rosette are simple, ovate-oblong, crenate or pinnatipartite. Cauline leaves lyrate-pinnatisect, with ovate-triangular or lanceolate, dentate upper lobe. Flowers lilac, purplish-violet or pink, the marginal flowers are larger than the others. Blooming is observed in June–August.

The species is distributed in the Caucasus, Europe, West, Middle (Kopetdagh) Asia, Africa. In Armenia it occurs in Lori, Ijevan, Darelegis, Zangezur, Meghri floristic regions, in forests, shibliak, meadows, rocks, at an altitude of 700–1700(2100) m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds, forplanting in groups on lawns or open spaces, borders, inmixed plantings. Looks great in rock gardens. Cut flowers are long-lasting in fresh bouquets. Wonderful plant for butterfly gardens. The plant is quite unpretentious, a sunny place and not waterlogged soil is required. Best in slightly alkaline, fertile but

well-drained soil. Necessary to dry soil between thorough waterings, protect from excessive winter moisture. For successful cultivation, a lit, sunny place for planting scabiosa is required full sun in cool climates, some light shade in hotter climates and seasons, regular watering. It tolerates high temperatures well.

Polypodiaceae

Dryopteris filix-mas (L.) Schott

Dryopteris filix-mas is a plant 25-100 cm in height (Photo 58). Fronds are semi-evergreen of 150 cm long, bipinnate, taper at both ends, consist of 20-35 pinnae on each side of the rachis. The stalks are covered with orange-brown scales. On the abaxial surface of the mature blade 5 to 6 sori develop in two rows. The spores ripen in August to November.

It is a common fern of the temperate Northern Hemisphere, native to the Caucasus, Europe, Asia, North America. In Armenia it occurs in all floristic regions, near forest stream, rocks crevices, at an altitude 1000–2700 m above sea level.

Recommendations for use in the arid ornamental lanscaping and gardening: for planting in shaded areas, rocks and hills, for group plantings and for alpine slides, for vertical gardening. Can be attached to holders in macrame woven pots. One of the most decorative and widely known ferns. Prefers loose, fertile, sufficiently moist, calcareous soils. It grows well with significant shading, frost-resistant.

Euphorbiaceae

Euphorbia marshalliana Boiss.

Euphorbia marshalliana is a glabrous, bluish, perennial plant (Photo 59). The stems are numerous, ascending, 10-20 (25) cm long, naked in the lower part, with leaf scars, densely leafy above. Stem leaves are sessile, oblong spatulate or rhombic obovate, 10-25×5-12(14) mm, fleshy. Apical peduncles number 7-12, involucre leaves are sessile, rounded or roundly obovate, bell-shaped cup, 3-3.5 mm in diameter, with large, often reddish, roundly ovate (about 1 mm wide), blunt finely toothed lobes; nectaries are transversely oblong, with white spatulate horns. Seed whitish, oblong, 2.8-3 mm long. Flowering is observed in April–May.

The species is native to the Caucasus, East Anatolia, North Iran. In Armenia it is distributed in Yerevan, Darelegis, Zangezur, Meghri floristic regions, in the foothills to the middle mountain belt, on dry, stony, sundy and gravelly slopes.

Recommendations for use in the arid ornamental lanscaping: to create rocky gardens, decorate hills, an excellent addition to borders, scree gardens. In cultivation the soil must not be too dense and prevent the roots penetrating. Furthermore, the soil must be well-drained so that surplus water can run away. *Euphorbia marshalliana* grown from seeds, propagated by cuttings and by division.

Photo 51. *Merendera sobolifera*

Photo 52. *Merendera trigyna*

Photo 53. *Convolvulus lineatus*

Photo 54. *Sedum hispanicum*

Photo 55. *Sedum oppositifolium*

Photo 56. *Bryonia alba*

Photo 57. *Scabiosa bipinnata*

Photo 58. *Dryopteris filix-mas*

Photo 59. *Euphorbia marshalliana*

Fabaceae

Astragalus cancellatus Bunge

Astragalus cancellatus is a perennial, silvery hairy herbaceous plant 25-40 cm high, sometimes woody at the base (Photo 60). Leaves are of 7-12 pairs of oblong-ovate leaflets. Inflorescences dense. corolla is reddish purple. Bracts are (3) 4–8 mm long, linear subulate or lanceolate. Calyx is pubescent with protruding hairs. Legume 6-7 mm long, obovate, sometimes slightly curved, not compressed between seeds. Blooming is observed in June–July.

The species is native to the Caucasus and North Iran. In Armenia is distributed in Shirak, Lori, Sevan, Yerevan, Darelegis and Meghri floristic regions, on dry grassy slopes, in light forest, shibliak, limestones, at an altitude of 600–300 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in Mediterranean style gardens, scree gardens, to create rocky gardens, decorate hills and rocks. For successful germination, *Astragalus* seeds require a 21-day cold period of stratification to promote germination, followed by mild scarification with fine-grade sandpaper. It grows best in a sunny location.

Astragalus compactus Lam.

Astragalus compactus is a perennial simple hairy, spiny cushion forming shrub 30-40 cm tall. Inflorescence is dense pedunculate, many-flowered, oblong-ovate or cylindrical. Corolla is initially whitish, later light pink-violet. Calix is densely pubescent. Legumes 1(2) seeded. Leaves are 3-15 cm, leaflets oblong-elliptic, pointed, rarely obtuse, 3-5-paired, dense pubescent. Blooming is observed in June–August.

It is native to Transcaucasia, Anatolia, Iran, Iraq (rarely). In Armenia it is found in Gegham, Yerevan, Darelegis floristic regions, on dry stony, gravelly, clayey slopes, in semidesert, steppes, open forests at an altitude of 900–2200 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in Mediterranean style gardens and scree gardens, to create rocky gardens, decorate hills and rocks. Easy in a sunny, well-drained areas. Propagated by seeds, cuttings, plant division.

Astragalus massalskyi Grossh.

Astragalus massalskyi is a perennial plant, covered with bipartite hairs (Photo 61). Leaves 5-20 cm long, leaflets are 6-9 pairs, lanceolate. Peduncles shorter than leaves, 2-4 cm long, 3-5 flowered. Corolla is yellow, 22-27 mm long. Legumes globular, inflated, coriaceus,13-20 mm in diameter. Blooming is observed in April–May.

In Armenia it is found in Shirak and Yerevan floristic regions in lower and middle mountain belts, on clay, stony and sandy places, among the phryganoid vegetation and tragacanth communities, in sandy desert, at an altitude of 700–1500

mabove sea level. Besides Armenia it occurs in Nakhichevan. It is included in the Red Book of Plants of the Republic of Armenia as Critically Endangered species.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in Mediterranean style gardens and scree gardens, to create rock gardens, decorate hills. Prefers well drained soil. Propagated by seeds, cuttings and plant division.

Astragalus szovitsii Fisch. et C.A. Mey.

Astragalus szovitsii is a hairy, spiny, cushion forming shrub10-30 cm in height (Photo 62). Leaves 3–18 cm long, leaflets 5-20 paired. Inflorescence dense, many flowered, long pedunculate. Corolla white. Bracts shorter than calyx tube. Calyx in fruits purple-colored**.** Blooming is observed in May–June.

The species is native to South Transcaucasia and West Iran. In Armenia it occurs in Sevan, Yerevan and Darelegis floristic regions, on stony gravelly and clayey slopes, at an altitude of 800–1600 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in Mediterranean style and scree gardens, to create rocky gardens, decorate hills and rocks. Does well in sunny, drained areas. Propagated by seeds, cuttings and plant division.

Astragalus takhtadzhjanii Grossh.

Astrgalus takhtadzhjanii is perennial herbaceous plant 10-20 cm tall (Photo 63). Beans are sessile, almost equal to a cup. Corolla is greenish-yellow. Blooming is observed in May–June.

The species is native to the Caucasus. In Armenia it is distributed in Shirak, Sevan, Yerevan, Darelegis floristic regions, in dry stony places, clayey, gypsum-bearing slopes, in weedy places, along roads.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in Mediterranean style gardens, to create rocky gardens, decorate hills and rocks, for planting in groups on lawns, for ornamental design of flower beds, to create a Mauritanian lawn. Prefers rich and well drained soil. Propagated by seeds, cuttings and plant division.

Coronilla varia L.

Coronilla varia is a perennial green, glabrous plant 30-100 cm tall (Photo 64). Leaflets oblong-lanceolate. Inflorescences axillary umbellate 10-20 flowered. Corolla pink, lilac, white. Bracts free, linear-lanceolate. Legumes linear, break up into 1-seed segments. Blooming is observed in May–August.

The species is native to the Caucasus, Europe, West Siberia, Anatolia, Iran. In Armenia it is distributed in Ijevan, Aragats, Aparan, Sevan, Yerevan, Zangezur floristic regions, in meadows, steppe, scrubs, stony slopes, banks, at an altitude of 600 – 3000 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create a Mauritanian lawn. It is widely cultivated as a ground cover plant, very fast spreading by suckers and seeds. Does well in drained areas. The plant is frost-

resistant down to −33 °C, drought-resistant, and tolerates stagnant water, but is an absolute heliophyte. It is a honey plant.

Dorycnium intermedium Ledeb.

Dorycnium intermedium is a perennial plant 15-50 (70) cm in height (Photo 65). The stems branched, covered with soft hairs in the upper part, glabrous below. Leaves sessile, 5-20 mm long. Inflorescences dense, umbellate, contain up to 25 flowers. Calyx is fluffy, bell-shaped, corolla white, with red claws. Blooming is observed in June–July.

It is native for the Caucasus, Balkans, Crimea, Anatolia. In Armenia it is distributed in Ijevan, Zangezur, Meghrifloristic regions, along the edges of oak forests, in bushes, on dry stony and grassy slopes, in the lower and middle mountain belts, at an altitude 600–1250 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create a Mauritanian lawn, decorate flower beds in gardens and parks. Prefers fertile, well-drained soil and regular watering. Propagated by seeds, cuttings and plant division.

Lathyrus tuberosus L.

Lathyrus tuberosus is a perennial herbaceous plant with creeping stems 30-120 cm (Photo 66). Leaves with a single pair of oblong-obovate leaflets. Stipules linear, 1 cm length. Peduncles with 3-6 fragrant flowers. Corolla is bright pink. Legumes are linear. Rhizome with spindle-shaped tuberous thickenings. Blooming is observed in June–July.

The species is distributed in the Caucasus, Europe, Siberia, Central Asia. In Armenia it is found in Shirak, Ijevan, Aparan, Sevan, Gegham, Yerevan, Darelegis floristic regions, in meadows, forest margins, open forest, steppe, at an altitude 700–2500 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create a Mauritanian lawn. Can be used with poles or trellises and also grows well near hedges, as a hanging plant for flowerpots and hanging gardens. Plant likes sunny places and some shade, can be provided with climbing aid. An easily grown plant, succeeding in any moderately good garden soil; it prefers a limestone soil. A sowing depth is 1-3 cm, best germination temperature 15-20°C, planting distance 30×30 cm. Honey plant. Up to 15 inflorescences and 100 flowers develop on one plant. Can be used as a perennial “sweet pea”.

Lotus caucasicus Kuprian

Lotus caucasicus is a perennial pubescent green plant 20-50 cm in height (photo 67). Leaflets obovate or obovate-romboid. Peduncles 3-8 flowered. Corolla yellow 16-20 mm in diameter. Legumes straight. Blooming is observed in May–June.

The species is distributed in all regions of the Caucasus, in Crimea. In Armenia it is found in all floristic regions, in middle and upper mountain belt, in meadows, forest edges, slopes, at an altitude of 1000–2900 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create a Mauritanian lawn, for cottege gardens. The two-flowered cultivar is grown as an ornamental plant. It is regularly included in wildflower mixes in Europe.Tolerates drought well in the initial phases of the growing season. It is not picky about soils. It grows well on chernozems, podzols, sandy and loamy soils. Tolerates soil salinity. Winter-hardy and wind-tolerant plant. Well-rooted seedlings with snow cover can easily withstand frost. Can be sown in early spring or autumn.

Onobrychis radiata (Desf.) M. Bieb.

Onobrychis radiata is a perennial herbaceous plantwithshort-protruding hairy stems 25-70 cm tall (Photo 68). The leaflets of the upper and middle leaves are rounded at the top, blunt, with short pointed tip. Corolla 15-17 mm long, cream with red veins. Teeth of calyx 5-7 mm in length, 2-3 times longer than tube. Legume dense tomentose, with or without singles long hairs, 12-15 mm diameter. Blooming is observed in May–July.

The species is native to the Caucasus, East Europe, Anatolia. In Armenia it is distributed in all floristic regions, on dry gravelly and grassy slopes, at an altitude of 700–2500 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in flowerbeds, in groups on lawns, to create a Mauritanian lawn. It sacceeds best when planted in a rich sandy loam, and in situation when is rather dry, particularly during winter. Propagation by seed, probably also by cuttings of basal shoots or division.

Onobrychis transcaucasica Grossh.

Onobrychis transcaucasica is a perennial herbaceous plant with short hairy stems up to 40-80 cm in height (Photo 69). Leaflets 6-13 paired, oblong-elliptic to lanceolate-linear. Brushes crested before flowering, elongated with fruits. Calyx teeth densely white-haired. Corolla large, 10-14 mm long, bright pink, with yellow stripes. Legumes semicircular, 6-7 mm. The lower leaves on long petioles, the upper ones almost sessile. Blooming is observed in July–August.

The species is native to Transcaucasia. In Armenia it is distributed in Ijevan, Sevan, Gegham, Aparan, Zangezur, Meghri floristic regions, on dry grassy slopes.

Recommendations for use in the arid ornamental landscaping and gardening: to create a Mauritanian lawn, for mass plantings in open spaces, for cottege gardens. *Onobrychis* typically have a deep taproot and so are very drought resistant. Propagated by seeds.

Sphaerophysa salsula (Pall.) DC.

Sphaerophysa salsula is a perennial grayish plant 30-80 cm in height, with adpressed, sparse pubescent (Photo 70). Leaves gray, odd-pinnate 4-10 cm long. Flowers numerous, collected in axillary raceme, corolla brick-red. Legumes 15-35×10-20 mm, inflated, oblong or almost rounded, membranous, indehiscent. Blooming is observed from May to July (August).

The species is distributed in the south of European Russia, Central Asia, Kazakhstan, Iran, Afghanistan, Altai, Tuva, Mongolia. In Armenia it is found in Yerevan floristic region in the lower mountain belt, on salt marshes, in slightly salted steppes, on sands, along river banks, at an altitude of 800–900 m above sea level. Vulnerable species of Armenian flora.

Recommendations for use in the arid ornamental landscaping and gardening: for decorate hills and rocks, for planting in groups on lawns or open spaces, suitable for plantings in saline areas. Propagated by seeds or division. Drought and frost-resistant plant.

***Trifolium pratense* L.**

Trifolium pratense is a perennial herbaceous plant with ascending stems, 15 – 45 cm tall (Photo 71). It has a deep taproot which makes it tolerant to drought and gives it a good soil structuring effect. The leaves are alternate, trifoliate, green with a characteristic pale crescent blotch in the outer half of the leaf. Stipules obovate or widely oblong, free portion abruptly narrowed into a soft setaceous tip. Calyx is entirely pubescens, teeth obtuse at the apex. The flowers are dark pink or purple-pink with a paler base, produced in a dense inflorescence. Blooming is observed in May–October.

It is native to the Caucasus, Europe, Western Asia, and northwest Africa, but planted and naturalized in many other regions. In Armenia the species is distributed in all floristic regions, from the foothills to the subalpine mountain belts, in meadows, forests, in wet places, at an altitude of 1000–2600 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create a clover lawn, as a groundcover, in herbaceous mixed borders, for rockeries. In landscaping schemes some of countries it is grown in gardens as an ornamental plant due to its pretty pink flowers and attractiveness to bees. Like many other leguminous plants, clover has in its roots some symbiotic bacteria capable of fixing atmospheric nitrogen, for this reason this plant is used to improve soil fertility, thanks to the presence of clover, chemical fertilizers can be reduced, irrigation frequency reduced, can counteract the growth of weeds. Propagated by seeds or division. *Trifolium pratense* is one of the best sources of pollen and nectar for long-tongued bumble bees and other insects. It is relatively undemanding to soils, grows well on meadow alluvial, clay and loamy soils, neutral or slightly acid reaction.

***Vicia grandiflora* Scop.**

Vicia grandiflora is an annual plant, slightly pubescent, mostly with ascending stems 15-70 (100) cm (Photo 72). The leaf axis ends with a tendril. Flowers yellow. Calyx not beveled. Stipules small. Flowers in leaf axils 1-3. The bean is linear, black at maturity, naked, elongated at the top. Seeds are slightly flattened. Blooming is observed inMay – July.

The species is distributed in the Caucasus, Europe, Iran, Iraq, Afghanistan. In Armeniait is found in Ijevan, Lori, Yerevan, Darelegis, Zangezur, Meghri floristic regions, in middle mountain belt, meadows, steppes, shibliak, stony slopes, road sides. at an altitude of 900–2000 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create a Mauritanian lawn or decoration of fences, arches and gazebos. As the seedlings grow, it is a good idea to provide structural support that can be climbed on, or it should be planted next to other stronger plants. Can be used with poles or trellises and also grows well near hedges, as a hanging plant for flowerpots and hanging gardens. Propagated by seeds.

***Vicia narbonensis* L.**

Vicia narbonens is an annual plant up to 60 cm tall, with strong, erect stem (Photo 73). Leaves of 2-3 pairs of large broad leathery leaflets. Calyx oblique, teeth unequal. Flowers large, on short stalks. Corolladirty-purple. Legumes oblong, valves compressed, rough-hairy at the seams. Blooming is observed in April–July.

It is native to the Caucasus, Europe, Mediterranean, Balkans, West and Central Asia. In Armenia it is found inIjevan, Yerevan, Meghri floristic regions, in weedy and wet places, at an altitude up to 1500 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create a Mauritanian lawn, suitable for herbaceous mixed borders, cottege gardens. Grows best in partial shade but can also tolerate direct sunlight. Propagated by seeds.

***Vicia variegata* Willd.**

Vicia nissoliana is a perennial slightly pubescent plant up to 80 cm in height (Photo 74). Stems ascending, clinging. Leaves of 7-12 leaflets. Stipules semisagittate, triangular. Flowers blue, large, in few-flowered long racemes. Pods slightly hairy without beaded constrictions. Blooming is observed in June–September.

It is native to the Caucasus, South Europe, Anatolia, Asia. In Armenia it is found in all floristicregions, onrocky slopes, in meadows, in bushes, in crops, at an altitude of 800–2500 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds and garden beds, to create a Mauritanian lawn. It can be used as a hanging plant for flowerpots and hanging gardens. Propagated by seeds or by division.

Photo 60. *Astragalus cancellatus*

Photo 61. *Astragalus massalskyi*

Photo 62. *Astragalus szovitsii*

Photo 63. *Astragalus takhtadzhianii*

Photo 64. *Coronilla varia*

Photo 65. *Dorycnium intermedium*

Photo 66. *Lathyrus tuberosus*

Photo 67. *Lotus caucasicus*

Photo 68. *Onobrychis radiata*

Photo 69. *Onobrychis transcaucasica*

Photo 70. *Sphaerophysa salsula*

Photo 71. *Trifolium pratense*

Photo 72. *Vicia grandiflora*

Photo 73. *Vicia narbonens*

Photo 74. *Vicia variegata*

Fumariaceae

Corydalis angustifolia (M. Bieb.) DC.

Corydalis angustifolia is a perennial plant 10 - 20 (25) cm high. Stem with one leaf, tuber is round, 1.5-2 cm in diameter with adventitious roots. Flowers are in loose racemes, white to creamy yellow, tips of inner petals are purple the corolla has a narrow limb, the bolls are narrowly linear, 3-4 times longer than the pedicels. Blooming is observed in April – May.

The species occurs in the Caucasus, Anatolia, Iran, naturalized in northern Russia and the Crimea.InArmeniait is distributed in Lori, Ijevan, Sevan, Darelegis, Zangezur, Meghri floristic regions, in forests, among bushes, rarely near snowfields, at an altitude 800 – 2400 m above sea level.

Recommendations for use in the arid ornamental landscaping: in mass plantings when creating early spring flower beds, decorate hills and rocks in partially shaded beds and borders, as a groundcover under shade trees when planted among rocks and makes an attractive edging for walkways too. *Corydalis angustifolia* is propagated by the tubers or by seed, which germinates best if sown fresh. This plant's name comes form the Greek meaning "crested lark" due to the birdlike shape of its flowers, one of the most popular cultivars is called "Blue Heron".

Gentianaceae

Centaurium pulchellum (Swartz) Druce

Centaurium pulchellum is an annual plant 15-40 cm tall (Photo 75). Stems branching below the middle or from the middle. Inflorescence loose, spreading, or compacted and corymbose, flowers white or bright pink. Blooming is observed in May–June.

The species is native to the Caucasus, Europe, Mediterranean, Siberia, West and Central Asia. In Armenia it occurs in Ijevan, Sevan, Yerevan, Darelegis, Zangezur floristic regions, In saline places, in gorges, in meadows, among bushes, from the lower to the upper mountain belt, at an altitude800–2100 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: in mass plantings when creating early spring flower beds, for cultivation in areas with saline soils. *Centaurium pulchellum* is a hardy plant that is relatively easy to cultivate, prefers well-draining, slightly acidic to neutral soils. It thrives in sunny to partially shaded locations. Its delicate flowers and foliage make it a showy addition to gardens or landscapes, compact growth habit makes it suitable for border plantings and garden edges. It can be grown into wildflower style or cottage-style, in gardens for a naturalistic look, in containers, adding a pop of color to balconies. The flowers attract bees and butterflies, contributing to pollinator-friendly landscapes.

Gentiana cruciata L.

Gentiana cruciate is a perennial herbaceous plantwith a thick, shortened, brownish rhizome (Photo 76). Stems 20–50 (70) cm tall, densely leafy with ovate-lanceolate3-nerve leaves up to 8 cm long, fused in pairs at the base. Perianth 4-

dimensional. The flowers form 4-6 whorls in the axils of the upper leaves. The corolla is blue inside, gray-green outside. Flowering is observed in June–July.

The species is native to the Caucasus, Europe, West Siberia, Anatolia, Iran. In Armenia it is distributed in Lori, Ijevan, Aparan, Sevan, Gegham, Darelegis, Zangezur, Meghri floristic regions, on dry grassy slopes, in fields, forest edges, shrubs, in the middle and upper mountain belts, at an altitude1400–2200 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds in gardens, for rock gardens, for planting on lawns, for mix borders and for cutting. *Gentiana cruciata* is primarily grown for its ornamental value due to its striking blue flowers and unique growth habit. Compact size and attractive flowers make it suitable for rock gardens. It can be used as an accent plant in borders and flowerbeds, into woodland garden settings. It can be a captivating addition to various garden styles, enhancing the visual appeal and providing habitat for pollinators. Bright flowers attract bees, butterflies. It prefers moist, well-draining soil and thrives in full sun to partial shade.

Geraniaceae

Representatives of the genus *Geranium* are in culture since the beginning of the 17th century. 90 species of the genus *Geranium* are used in ornamental gardening, including 5 hybrid ones. Geraniums display an array of ornamental features that contribute to their popularity in garden design. *Geranium* foliage is of interest even when the plants are not in bloom. It is known as one of aromatic plants. The flowers appear in abundance throughout the summer in various colours and shades of pink to white, providing a spectrum of options to different design prefrences. *Geranium* can be grown in various climatic conditins, it is renowned for their hardiness and adaptability.

Geranium collinum Steph. ex Willd.

Geranium collinum is a perennial herbaceous glandulose plant 15-40 cm tall with elongated rhizome (Photo 77). Leaves are circular in outline, palmately cut into pointed lobs. Calyx lobes oblong-ovate, 3-5-veined, appressed hairy, with short awns. Petals obovate, liliac-pink with purple nerves, anthers are yellowish or piknish. Blooming is observed in May–June.

The species is distributed in the Caucasus, Romania, European part of Russia, Anatolia, Iran, Afghanistan, Pakistan, West Siberia, Central Asia. In Armenia it is found in Shirak, Aragats, Ijevan, Aparan, Sevan, Gegham, Yerevan, Darelegis, Zangezur floristic regions, in meadows, edges of forests, at an altitude 1200–3200 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds in gardens and parks, when planting in groups on lawns or open spaces, for mix border and for cutting. In landscaping, it is suitable to use along the banks of artificial reservoirs, in mixborders, in partial shade flower beds of continuous flowering. In culture, blooms in the second year of life. Propagated by seeds and vegetatively. In culture prefers well-moistened places, easily adapts to soils with some salinity, frost-resistant.

Geranium tuberosum L.

Geranium tuberosum is a perennial herbaceous plant 12-30 cm tall, pubescent with squarrous hairs (Photo 78). Leaves are dissected to the base on pinnate lobes. Calyx lobes short hairy. Petals emarginate, pinkish-lilac. Blooming is observed in May–June.

The species is native to the Caucasus, East Europe, Mediterranean, Syria, Iraq, Iran. Very common throughout Armenia, ondry slopes, in fields, at an altitude of 900–2200 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds and garden beds; when planting in small groups on lawns or open spaces; for flower beds, mix border and for cutting, sometimes used as a groundcover. It reproduced by daughter tubers (at the end of summer) and seeds. Tubers can be stored without substrate for several months. Winter hardiness is low, so the plants need shelter. Unpretentious and stable in culture, does not require special care.

Geranium sanguineum L.

*Geranium sanguineum*is a perennial herbaceous plant 20-50 cm in height (photo 79). Leaves depply dissected on 5-7 segments, which also cut on 3-5 lanceolate, slightly acuminate lobes. Flower on solitary peduncle. Petals weakly emarginate or entire, blood-red. Blooming is observed from June to August.

The species is native to the Caucasus, Europe, Mediterranean. In Armenia it is distributed in all floristic regios, besides Aragats and Darelegis, on dry slopes, forestedges, meadows, at an altitude of 900–2300 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds and garden beds, when planting in small groups against the background of lawns or open spaces, for flower beds, mix border and for cutting. In floriculture for group and border plantings, as well as in rock gardens. In landscaping, it is suitable to use along the banks of artificial reservoirs, in mixborders, in partial shade flower beds of continuous flowering. One of the most stable geraniums in terms of decorativeness, retaining its attractiveness literally the whole season. Refers to long-lived perennials–without a transplant grows up to 15 years. It is used for landscape design. It has many varieties, the height of which varies from 10 to 30 cm, and the petals differ in color: variations of pink – 'Alan Bloom', 'Elsbeth', 'Nyewood', 'Belle of Herterton', 'Prostratum', 'Inverness', 'John Elsley', 'New Hampshire Purple', 'Max Frei', 'Nana', 'Canon Miles' (in lilac); pale pink – 'Apfelblute', 'Compactum', 'Glenluce, Striatum'; raspberry – 'Ankum's Pride' (terry), 'Elke' and others.

Globulariaceae

Globularia trichosantha Fisch. et C. A. Mey.

Globularia trichosantha is a perennial herbaceous plant (Photo 80). Stem erect, 5-35 cm tall. Lower leaves obovatae, spathulatae to elliptic, forming rosettes; cauline

narrowly elliptic to linear. Inflorescence terminal, solitary, globose, azure blue,1.3-1.7(2.5) cm in diameter. Flowering is observed in April–July.

The species is distributed in the Caucassus, Crimea, Balkans, WestAsia.InArmeniait occurs in Upper Akhuryan, Ijevan, Aragats, Aparan, Sevan, Gegham, Yerevan, Darelegis, Zangezur floristic regions, on rocky and grassy slopes, in steppe, at an altitude 1200–2600 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create rocky gardens, decorate hills and rocks, for carpet beds and rocky hills decoration, edging plant or small-scale groundcover, for small scale vases. It is long blooming during springandsummer. *Globularia trichosantha* is quick and easy to grow from seed and a hardy and easy plant to grow in either garden or pot. Seeds need light to germinate. Frost, heat and drought hardy, it is very well adjusted to extremes of climate and conditions. Prefers rich and well drained soil but will tolerate a range of soil conditions.

Hyacinthaceae

Bellevalia glauca (Lindl.) Kunth

Bellevalia glauca is a bulbous plant with straight strong leafless stems (arrows) 12-20 (30) cm in height (Photo 81). Bulbs 2-3.5 cm in diameter. The leaves basal, lanceolate, densely ciliated along the edge. Flowers purple, collected in a multi-flowered conical brush 8-12 cm long. Perianth 6-9 mm long, broadly bell-shaped, brownish-violet. Stamens 6. Ovary 3-locular, with 6 ovules. Style shorter than or equal to ovary. Capsule 3-sided, oblong in outline. Seeds spherical 1.7-2 mm in diameter. Blooming is observed in April–May.

The species is native to the Caucasus, Iraq, Iran. In Armenia it is distributed in Shirak, Lori, Ijevan, Aparan, Sevan, Yerevan, Darelegis floristic regions, from the foothills to the middle mountain belt, on dry, rubbly and clay slopes, at an altitude of 700–2000 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for alpine hills, in mass plantings for creating early spring flower beds or mixed early spring flower beds with various bulbs and primroses. Planting in open areas or in conditions of light shading. Propagated by seeds.

Bellevalia longistyla (Miscz.) Grossh.

Bellevalia longistyla is perennial bulbous plants with straight strong leafless stems (arrows) 20-30 cm high. Leaves basal, wide-lanceolate, rarely ciliated along the edge. Flowers pale lilac brown, collected in a multi-flowered wide-conical brush 12-20 cm long. Perianth (9)10-12 mm long, elongated campanulate. Stamens 6. Ovary 3-locular, with 6 ovules. Style longer than ovary. Capsule 3-sided, oblong in outline. Seeds 2-2.3 mm in diameter. Bulbs 2.5-5 cm in diameter. Blooming is observed in April–May.

The species occurs in Nakhitchevan, Zuvand, Anatolia and Iran. In Armenia it is distributed in the Yerevan floristic region, from the foothills to the middle mountain belt on dry rubble and rocky slopes, at an altitude of 600–2000 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for flowerbeds in parks and gardens, rock gardens, in mass plantings when creating early spring flower beds. Easy in a sunny, hot and dry, well-drained areas, in humus-rich soils.

Muscari caucasicum (Griseb.) Baker

Muscari caucasicum is a perennial bulbous plant with leafless stems (arrows) 20-30 cm (Photo 82). Leaves basal, linear, leathery, cartilaginous along the edge, rough-ciliated. Flowers collected in a loose elongated brush 15-25 cm. Numerous sterile amethyst purple flowers collected in an apical tuft. Perianth of fertile flowers with small recurved yellow or yellowish-beige teeth. Stamens 6, filaments cylindrical. The ovary rounded, 3-nested, nests with 2 ovules. The capsule triangular, seeds spherical, black. Bulbous scales bright pink. Blooming is observed in April–June.

The species is native to the Caucasus, Anatolia, Iraq, Iran. In Armenia it is distributed in all floristic regions, except Lori, from the foothills to the subalpine belt, on gravelly places, rocky mountain slopes, in mountain-steppes and steppe formations with elements of semideserts, arid woodlands, at an altitude of 400–2600 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: in mass plantings for creating early spring flower beds, in rock gardens. Propagation by seeds or bulbs. *Muscari caucasicum* prefer a sunny, well-drained location, on loamy soil, with dry summer rest.

Muscari neglectum Guss.

Muscari neglectum is a perennial bulbous plant with leafless stems (arrows) 10-20 (25) cm (Photo 83). Leaves basal, linear, smooth along the edge. Raceme dense, short 1-3 cm. Sterile flowers few, light purple, slightly different in shape and color from fertile ones, do not form an apical tuft. The perianth of the fruiting flowers is blackish-violet, oblong-barrel-shaped. Bulb usually with numerous bulblets ovoid, with dark brown outer scales. Capsule 5-7 cm, seeds black. Blooming is observed in March– June.

The species is found in the Caucasus, Europe, Asia, North Africa. In Armenia occurs in Yerevan, Darelegis, Meghri floristic regions, from foothills to the middle mountain belt on rocky gentle slopes of hills, more often among crops and fallows, at an altitude of 700–1900 mabove sea level.

Recommendations for use in the arid ornamental landscaping and gardening: in mass plantings for creating early spring flower beds. This is an unpretentious plant that quickly acclimatizes and independently spreads through the garden. It easily takes root in the garden, is very unpretentious in care and multiply annually, beautifully covering everything with a carpet. Propagation by seeds or bulbs. It is introduced in culture in Western Europe.

Muscari szovitsianum Baker

Muscari szovitsianum is a perennial bulbous plant with leafless stems (arrows) 10-15 (20) cm tall (Photo 84). Leaves basal, linear, leathery, cartilaginous along the

edge, rough-ciliated. The flowers collected in a cylindrical brush 2-2.5 cm. Few sterile flowers collected in an apical tuft. Perianth of fertile flowers ovoid pitcher with recurved purple, light purple, sometimes whitish teeth. Stamens 6, filaments cylindrical. The style is short, filiform, with a capitate stigma. The capsule triangular, seeds spherical, black. Bulbous scales dark grey. Blooming is observed in April–June.

The species is found in all regions of the Caucasus and in Anatolia. In Armenia it is distributed in all floristic regions, from the foothills to the upper mountain belt, on grassy slopes, along forest edges, in bushes, on rocky-gravelly habitats, at an altitude of 700 – 2200 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: in mass plantings when creating early spring flower beds, for alpine rocks. The most cultivated species of *Muscari*. It is very popular in ornamental floriculture and has been cultivated for a long time. There are many varieties *Muscari szovitsianum* known with flowers from white and bright blue to dark blue in color. Plant is propagated by daughter bulbs and seeds. In the latter case, it blooms in the third year after sowing. Daughter bulbs are planted to a depth of 4-8 cm, and plants are transplanted every 5-7 years.

***Muscari tenuiflorum* Tausch**

Muscari tenuiflorum is a bulbous perennial 15-30 cm in height with a short, flattened underground stem (Photo 85). The bulb is cream-white to light yellow, 2.5-4.5 cm long and 1.8-3.2 cm in diameter, covered by a greyish-brown papery tunic.

The species is native to the Caucasus, Europe, Anatolia, Iran, Syria, Iraq. In Armenia it occurs in Upper Akhuryan, Lori, Ijevan, Aparan, Sevan, Gegham, Yerevan, Darelegis, Zangezur, Meghri floristic regions, from the lower mountainous to the subalpine belt, on gravel-stony places, in the steppes, woodlands, at an altitude of 800–2600 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: can be grown in rock gardens, in early spring flower beds, in the gardens among shrubs, under trees. It can also be planted in containers and in a greenhouse. *Muscari tenuiflorum* reproduces by seed and does not propagate vegetatively, as the bulbs do not produce offset bulbs.

***Ornithogalum montanum* Cirillo**

Ornithogalum montanum is a perennial bulbous plant 5-30 cm tall (Photo 86). Leaves are 5(7)-20(25) cm long, 4-22(30) mm wide, wavy along the edge. Number of flowers in corymbose inflorescence 15-30. Flower arrows 5-25(29) cm tall. Perianth segments on the outside with a green or bright green stripe. The capsule light green. Leaves 5(7)-20(25) cm long, 4-22(30) mm wide, wavy along the edge. Bulb 1-2 cm in diameter. Blooming is observed in May–June.

The species is distributed in the Caucasus, Europe, West Asia, Afghanistan. In Armenia it is found in Aragats, Ijevan, Aparan, Sevan, Yerevan, Darelegis, Zangezur, Meghri floristic regions, from the foothills to the upper mountain belt, on dry rocky slopes, screes, in the tragacanth steppe, juniper woodlands, lawns, at an altitude of 400 – 2400 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: in mass plantings when creating early spring monoflower beds, to create spring flower arrangements with other early flowering species, snowdrops, crocuses, muscari, onions, corydalis and some others, for rock hills. Leaves remain decorative until the last decade of June. It grows best in light sandy soils and full sun. Due to its high shade tolerance, it successfully grows also under the canopy of ornamental shrubs and in the shade of trees. Every 4-5 years it needs to dig and replant bulbs. Bulblets are recommended to be planted in autumn, in September–October, at a depth of 5-10 cm and at a distance of 10-15 cm from each other. When propagated by seeds, seedlings bloom in the fourth or sixth year after sowing. Ornitogalum has been known in culture since the end of the 16th century. In ornamental gardening, 18 species are used. Some species are quite widespread.

Hypericaceae

Plants in the Hypericaceae family, particularly those in the *Hypericum* genus, are grown for their ornamental value. The genus has a nearly worldwide distribution. Almost all *Hypericum* flower petals are yellow, though a range of color exists from a pale lemony hue to a deep orangish-yellow. *Hypericum* species with showy flowers and colorful foliage can be used as border plants to add visual interest, suitable for rock gardens due to their compact growth, fo cutting. About 11 species of *Hypericum* are found in cultivation. Numerous hybrids and cultivars have been developed for use in horticulture.

***Hypericum elongatum* Ledeb. ex Rchb.**

Hypericum elongatum is a perennial herbaceous plant, glabrous, bluish-green or grayish, 20-50 cm tall (Photo 87). Stems erect, shortly branched. Leaves oblong-linear 1-2.5 cm long and 0.5-1 cm wide, obtuse with scattered glandular putures. The inflorescence is an elongated, loose, narrow panicle, 12–20 cm long and 2–4 cm wide. Bracts lanceolate, obtuse, 3 mm long, calyx 3-5 mm long, calyx lobes ovate-oblong. Petals are yellow, oblong-obovate, 1-1.2 cm long and 0.4-0.5 cm wide, with capitate glands along the edges, numerous stamens. Seeds are small, 2-2.5 mm long, cylindrical. Flowering occurs from June to July.

The species is native to the Caucasus, Krym, West and Middle Asia, Xinjiang. In Armenia it is found in Upper Akhuryan, Shirak, Aparan, Sevan, Yerevan, Darelegis, Zangezur, Meghri floristic regions, from lower to upper mountain belt, on dry stony places.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in borders, flower beds, or mixed perennial plantings to add vibrant yellow flowers to landscape. It can be propagated by seeds, cuttings and division.

***Hypericum perforatum* L.**

Hypericum perforatum is a perennial herbaceous plant (Photo 88). Stems are 2-lined, wingless. Leaves are opposite, elliptic or oblong-ovate, entire, sessile, obtuse, with numerous light translucentand black glands. Inflorescence is broadly paniculate, multiflowered. Corolla is golden yellow, petals 8-12 mm in length, with superficial

black dots and streaks near the margins and at upper part. Capsulaiswith buble-shaped glandules. Stems are 30-100 cm height. Blooming is observedinMay– July.

It is native to the Caucasus, temperate parts of Europe and Asia, and has spread to temperate regions worldwide as invasive species. It is very common in all floristic regions of Armenia in forests, shrubs, herbaceous slopes, ruderal places, at an altitude up to 2300 m.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds, in mix borders, along garden borders to add of color, in wildflower or cottage-style gardens for a natural and informal look, for cutting. It grows in dry and sunny areas. The flowers attract bees and butterflies, making it beneficial for pollinator-friendly gardens.

***Hypericum scabrum* L.**

Hypericum scabrum is a perennial herbaceous plant (Photo 89). Plant strongly scabrid by dense glandulose-wartous tubercules. Inflorescence dense corymbose. Stems 15-45 cm height. Blooming is observed May– June.

The species is distributed in the Caucasus, West andCentralAsia. In Armenia it is found in Shirak, Aragats, Sevan, Yerevan, Darelegis, Zangezur, Meghri floristic regions, on dry stony places, at an altitude of 400 – 2100 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds and garden beds, for planting in groups on lawns or open spaces, for flower beds, mix border and for cutting. The plant is grown for its ornamental value, particularly its bright yellow flowers.

Photo 75. *Centaurium pulchellum*

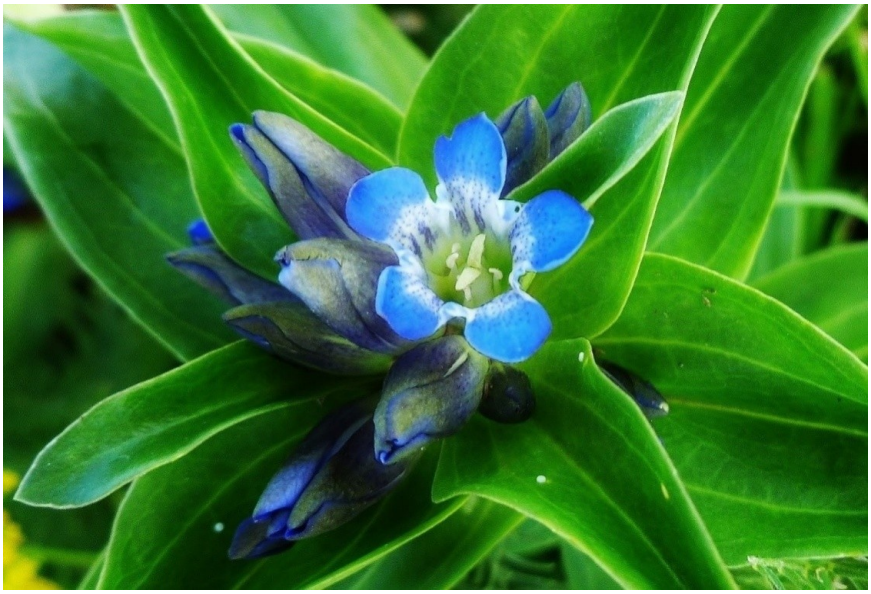

Photo 76. *Gentiana cruciata*

Photo 77. *Geranium collinum*

Photo 78. *Geranium tuberosum*

Photo 79. *Geranium sanquineum*

Photo 80. *Globularia trichosantha*

Photo 81. *Bellevalia glauca*

Photo 82. *Muscari caucasicum*

Photo 83. *Muscari neglectum*

Photo 84. *Muscari szovitsianum*

Photo 85. *Muscari tenuiflorum*

Photo 86. *Ornithogalum montanum*

Photo 87. *Hypericum elongatum*

Photo 88. *Hypericum perforatum*

Photo 89. *Hypericum scabrum*

Iridaceae

Representatives of crocuses were well known in antiquity being, and are described at least as far back as Theophrastus (c. 371 - c. 287 BC). They were brought to Britain by the Romans, where saffron crocuses were used as a dye and were reintroduced into Western Europe by the Crusaders. The crocus is mentioned in mediaeval and later herbals, one of the earliest being the 14th century Tractatus de Herbis.

Crocus adamii J. Gay

Crocus adamii is a perennial herbaceous plant with flower peduncle 4-6 cm in heght, 1-2 (3) flowers and 3-9 leaves (Photo 90). Perianth is pale- or dark lilac, with black stripes outside, 3-5 cm in diameter, yellow or whitish in the centre. Anthers yellow, with short filaments. Style with 3, yellow, orange or whitish stigmatic branches. Blooming is observed in (February)March–April.

The native range of the species is the Caucasus, South-East Europe, Crimea, North-West Anatolia, NorthIran.In Armenia it is distributed in all floristic regions except Upper Akhuryan, ondry stony, grassy slopes, in steppes, shibliak, shrubbery, woodlands, forest, at an altitude 1000–2900 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: in mass plantings when creating early spring flower beds, to create rocky gardens, decorate hills and rocks. It looks good in group plantings along with other spring small-bulb plants or singly, harmoniously fit into the rock garden. It is especially attractive among the grass, next to trees and shrubs. *Crocus adamii* is very easy in cultivation. It requires dry summer rest and well-drained alkaline soils. It grows equally well both in the garden and in pots under cover.

Crocus speciosus M. Bieb.

Crocus speciosus is a perennial herbaceous plant up to 10-15 cm in height (Photo 91). Leaves two or four, linear with ciliated edges, develop after flowering. Flowers lilac with dark veins, styles orange, much-divided. Fruit is a capsule. Blooming is observed in September–October.

The species is native to the Caucasus, Crimea, Bulgaria, Anatolia, Iran. In Armenia it is distributed in Ijevan, Gegham, Yerevan, Darelegis, Zagezur floristic regions, in crops, forests, on the edges, in mountain steppes, on grassy slopes, in floodplains, at an altitude of 900–2800 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create alpine gardens, decorate hills and rocks, in mass plantings when creating autumn flower beds. The species and the white-flowered cultivar 'Albus' are in cultivation as ornamental plant. *Crocus speciosus* is grow in gritty, poor to moderately fertile, well-drained soil. Perfect in flowerbeds and borders, rock gardens, cottage gardens. To be planted in mid to late summer.

Iris L. genus flowers have been known to man since ancient times. *Iris* flower history dates back to Ancient Greece. According to Greek mythology, Iris was the goddess of the rainbow and beautiful flowers sprouted wherever Iris stepped. On the

island of Crete, a fresco on the wall of the Palace of Knossos depicts a priest surrounded by blooming irises. This fresco is about 4000 years old. In the Middle Ages, irises were grown in the gardens of castles and monasteries, from where they were transferred to the gardens of the towns people. At least 200 *Iris* species have been identified around the world, but varieties and cultivars number in the thousands.

***Iris elegantissima* Sosn.**

Iris elegantissima is a rhizomatous perennial plant 10-30 cm tall (Photo 92). Leaves amplexicaul, falcate. Flowers large, external lobes of perianth limb 6-8 cm in diameter, densely covered with dark brown veins and small spots, with large ronded black velutinous spot in the centre; inner ones 6-8 cm in diameter, usually creamy or white, with thin violet veins. Blooming is observed in April–June.

The species is distributed in the Caucasus, East Anatolia and North-WestIran.InArmeniaitoccurs in Shirak, Aparan, Aragats, Sevan, Yerevan floristic regionsin lower and middle mountain belts, at the altitudes of 750–2000 m above sea level, on dry rocky, marl slopes, on the red clays of the Tertiary period, in semidesert, among phryganoid vegetation, in the mountain steppe. Endangered species of Armenian flora.

Recommendations for use in the arid ornamental landscaping and gardening: for rocky gardens and rocky hills decoration, for mass plantings when creating early spring flower beds. It is drought tolerant species, prefers dry to moderately dry well-drained soils, winter-hardy. The species is in culture since 1831. Highly ornamental plant.

***Iris demetrii* Akhv. et Mirzoeva**

Iris demetrii is a perennial herbaceous rhizomatous plant (Photo 93). Leaves are stiff, dark green, up to between 60-90 cm long, exceeding stems. Stem strongly compressed, at apex with 4-5 terminal blue to dark blue flowers in shades. Perianth tube 8-10 mm long. Falls are almost round at apex, 3×25 cm, transcient into dilatate claw with wide median yellow stripe. Standards oblong, obovate. Capsule 3-5 cm long, cylindrical, acute with beak. Blooming is observed June–July (August).

The species is native to South Transcaucasia. In Armenia it is distributed in Shirak, Aragats, Lori, Aparan, Sevan, Gegham, Yerevan, Darelegis, Zangezur floristic regions, on dry stony, rocky, grassy slopes, shibliak, sparse woodland, steppe, pasture, meadows, at an altitude 1400-2500 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds in gardens and parks, for planting on lawns or open spaces, for mix borders and for cutting. *Iris demetrii* refers to grow in rich, well-drained soil, including clay soils. Does not like wet soils. It also prefers places in full sun or partial shade. It is cultivated as an ornamental plant in temperate regions.

***Iris musulmanica* Fomin**

Iris musulmanica is a rhizomatous perennial plant (Photo 94). Stem 40–90 cm in height. Leaves narrowly linear, shorter than stem. Flowers 2-5, light blue, pale blue or rarely whitish, 10-12 mm in diameter. Bracts 7-10 cm long, lanceolate, with

membranous margins. Perianth tube 7-15 mm long, outer limb lobes 6-8 cm long, inner up to 5.5 cm long. Blooming is observed from May to July.

The species is native to South Transcaucasia, East Anatolia, North-West Iran. In Armenia it occurs in the Yerevan floristic region, in lower and middle mountain belts, at the altitude of 700–800 m above sea level, in salt marshes, in moist saline meadows, along the banks of irrigation channels. It is included in the Red Book of Plants of Armenia under the category Endangered species.

Recommendations for use in arid decorative landscaping and gardening: for planting in parks and gardens, along the banks of ponds and reservoirs; it can be grown in garden soils, stony areas, and saline soils. Prefers sunny or partial shade and needs regular watering. A hardy plant that can survive winter without shelter. *Iris musulmanica* can be propagated by division or by seed growing, usually germinates within 30–545 days.

***Iris paradoxa* Fomin**

Iris paradoxa is a perennial herbaceous rhizomatous plant 15-40 cm tall, near base tuberiform thickened (Photo 95). Stem erect, Leaves are narrow falcate, often twisted. Falls are velutinous finger-like, 2.5-4×1-1.5 cm, dark-violet truncate and pinkish, V-shape marking at apex. Standards 5-9×3.5-6 cm, widely obovate, dark-violet-blue. Seeds globose with beak and whitish arilloid. Blooming is observed in April–June.

The species is native to the Caucasus, North-East Anatolia, West Iran. In Armenia it is distributed in Shirak, Aragats, Lori, Ijevan, Sevan, Yerevan, Darelegis, Zangezur, Megrifloristic regions, on dry stony, loamy, rocky, marl, cobble slopes, screes, in shibliak, phryganoids, steppes, woodlands, at an altitude of 450–2800 mabove sea level.

Recommendations for use in the arid ornamental landscaping and gardening: *Iris paradoxa* can be easily grown in rock gardens, which should have a summer drought. They grow well in full sun with mildly acidic to mildly alkaline soils.

***Iris pumila* Fomin**

Iris pumila is a perennial herbaceous plant 10-15 cm in height (Photo 96). Stem absent or 1 cm in length, leaves are 3-15 mm long, greyish-green, straight or slightly sword-shaped, flowers solutary. Perianth tube is 2-9 cm long, thin, the outer lobes of the limb are oblong-wedge-shaped with a yellow or bluish beard. The species is distinguished by greatly varies in color purplish, blue, yellow, greenish or even white flowers. All forms are lightly scented. Blooming is observed in April–July.

The species is distributed in the Caucasus, in the south of Middle Europe, Mediterranean, Crimea, Anatolia. In Armenia it is found in Upper Akhuryan, Shirak, Lori, Ijevan, Sevan, Gegham floristic regions, on dry stony, rocky, grassy slopes, in semidesert, steppes, at an altitude of 700–2200 mabove sea level.

Recommendations for use in the arid ornamental landscaping and gardening: in mass plantings when creating early spring flower beds, to create rocky gardens, decorate hills and rocks, for carpet beds and rocky hills decoration. *Iris pumila* plants will look great in a group garden composition in the foreground. At the height of fashion now is the concept of gardens in a natural style. It blooms earlier than other

species, in early May, bears fruit annually. Carries dry places well, easy in a well-drained, sunny spot, best in a poor, limey soil.

Iris reticulata M. Bieb.

Iris reticulata is a perennial plant 8-17 cm in heigh with underground stem (Photo 97). Bulb with one fleshy scale, 3×1 cm, covered with reticulate - fibrous tunic. Leaves 1-3, thin, 4-7-ribed. Flowers solitary, pale- to dark blue, purpleviolet, rarely white. Blooming is observed in March–April.

The species is native to the Caucasus, East Anatolia, Iran, Nort-East Iraq. In Armenia it is distributed in all floristic regions, except Shirak, on dry stony slopes, semidesert, sparse woodland, shrubbery, steppe, forest glade, fallow field, meadows, at an altitude of 900–2500 m above sea level.

Recommendations for use in the arid ornamental gardening: in mass plantings when creating early spring flower beds; to create rocky gardens, decorate hills and rocks; for carpet beds and rocky hills decoration. The small ornamental flower of *Iris reticulata* was discovered in 1812, and now it serves as a harmonious addition to the design of the site or flower beds, is used in group plantings, alpine gardens, borders, etc. A low-growing plant harmoniously stands out against the background of tall shrubs or trees, and also looks beautiful in group plantings. They have very earlyvegetation and blooming, under favorable conditions they bloom in February-March. Prefers neutral, humus, drained soils. *Iris reticulata* is light-loving plants that do not tolerate excessive moisture, so for planting it is necessary to choose the most illuminated, warm, wind-protected area without moisture stagnation.

Ixilioriaceae

Ixilirion tataricum (Pall.) Herb.

Ixilirion tataricum is a perennial plant up to 50 cm tall, with an oblong-ovate corm (Photo 98). The stems are erect, the leaves are green, linear, pointed, crowded mainly in the lower part of the stem. Flowers on pedicels, 2-5 at the top of the stem. Perianth bluish-purple. Blooming is observed in April–June.

The native range of the species is the Caucasus, Western and Central Asia, south of Western Siberia (Altai), northwest of South and East Asia (Xinjiang). In Armenia it is distributed in Aragats, Aparan, Yerevan, Darelegis, Zangezur, Meghri floristic regions, from the foothills to the upper mountain belt, on dry stony clay slopes, in crops, on fallows, in vineyards, along roads, in the wormwood semidesert, in the mountain steppes, at an altitude of 600–2300 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for early spring flower beds, is well-suited for rock gardens due to its small size and striking flowers, potted indoor culture and for cutting. Its delicate appearance contrasts nicely with rocks and other hard elements. *Ixilirion tataricum* is primarily grown for its ornamental value, particularly its beautiful blue flowers. It is planting along borders and garden edges to add a splash of color. *Ixilirion tataricum* is cold-hardy and can withstand freezing temperatures. It prefers a location with good air circulation, bulbs plant in well-draining soil in a sunny to partially shaded location.

Photo 90. *Crocus adamii*

Photo 91. *Crocus speciosus*

Photo 92. *Iris elegantissima*

Photo 93. *Iris demetrii*

Photo 94. *Iris musulmanica*

Photo 95. *Iris paradoxa*

Photo 96. *Iris pumila*

Photo 97. *Iris reticulata*

Photo 98. *Ixilirion tataricum*

Lamiaceae

Eremostachys laciniata (L.) Bunge

Eremostachys laciniata is a perennial plant 50-100 cm in height (Photo 99). Leaves pinnatisect or pinnatipartite, usually pubescent. Flowers in pseudo-whorls forming spike-shaped inflorescence. Corolla large two-lipped, white, yellow or pinkish 20-25 mm long. Calyx cylindrical, up to 15 mm long. Stamens 4, all or only upper stamens with fringed appendages. Blooming is observed in May–July.

The species is native to the Caucasus, West and Middle Asia, Afghanistan. In Armenia it is found in Shirak, Ijevan, Yerevan, Darelegis, Zangezur, Meghri floristic regions, in lower and middle mountain belts, on dry rocky slopes, at an altitude of 1000–1800(2000) m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for rock gardening, for planting in groups against the background of lawns. It is an attractive addition to any garden, especially for the gravel garden. It also lends to Mediterranean-style drought-tolerant plantings, is fairly easy to grow and doesn't require much attention. It should be watered moderately throughout the season, but allowing the soil to dry slightly between waterings. Furthermore, should receive plenty of sunlight. The name *Eremostachys* derives from the Greek for desert: “eremia”, and "stachys" literally translates to "ear of corn", which resembles its inflorescence.

Lamium album L.

Lamium album is a perennial herbaceous plant with a thin, straight shoot up to 45-50 cm long (Photo 100). The upper part of the stem is pubescent, the lower part is glabrouse. Rhizome long, creeping. The leaves are bright green, oval, elongated, 3-8×2-5 cm, with teeth along the edges and slight pubescence on the surface. The flowers are whitewith slight ocher spots, about 2.5 cm long. Flowering occurs in June to September.

The species is native to Eurasia, from Ireland in the West to Japan in the East. In Armenia it is distributed in all floristic regions, from the lower to the upper mountain belt, in forests, thickets of shrubs, in weedy places, in gardens and orchards.

Recommendations for use in the arid ornamental landscaping and gardening: for group plantings as a groundcover in shady and inconvenient places, under the canopy of deciduous and coniferous plants, as well as a border plant in flowerbeds and borders, for growing in pots. From an ornamental point of view, its cultivation attracts a lot of attention in horticulture. It easily propagated vegetatively by division, cuttings, seed propagation can be used. Winter hardy without shelter. *Lamium* is in culture since the beginning of the 20th century, 5 species are used. About 20 cultivars of *Lamium* have been developed: ‘Album’, ‘Beacon’s Silver’, ‘Cannons’s Gold’, ‘Chequers’, ‘Goldflake’, ‘Hermann’s Pride’, ‘Variegatum’ and others.

Marrubium parviflorum Fisch. et C.A. Mey.

Marrubium parviflorum is a perennial herb 20-50 cm high, pubescent with stellate or bushy multicellular hairs. Leaves gray-green, oblong. Calyx tubular with 10

veins and 6-10 teeth. Bracts half as long as the calyx, the teeth bent, straight at the end. Corolla two-lipped whitish-yellow, almost not protruding from the calyx. The stamens enclosed in the corolla tube; the posterior stamens shorter than the anterior ones. The style lobes short and blunt. Blooming is observed in May–July.

The species is native to Transcaucasia, Anatolia, Iran. In Armenia it is found in Shirak, Lori, Aparan, Sevan, Gegham, Yerevan, Darelegis, Zangezur, Meghri floristic regions, from the lower to the middle mountain belt, on dry stony slopes, at an altitude of 800–1300(1800) m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in groups on lawns or open spaces, it is suitable for to Mediterranean style gardens and gravel gardens. It is a hardy perennial that can be propagated from seed or cuttings. It is drought tolerant, prefers full sun and well-drained soil.

***Mentha longifolia* (L.) L.**

Mentha longifolia is a perennial aromatic plant with creeping rhizomes (Photo 101). Leaves sessile, usually white hairy, grayish or glabrous above, 4-9 cm long, oblong or oblong-lanceolate. Flowers small, collected in spike-shaped inflorescences. The bracts noticeably smaller than the stem leaves. Corolla with a limb formed by 4 blades and a tube hidden in the 2.5 mm long calyx, pinkish lilac or lilac, stamens 4. Flowering is observed in June–September.

The species is native to the Caucasus, Europe, Mediterranean, Anatolia, Iran, Iraq, Middle Asia, Afghanistan. It is distributed in all floristic regions of Armenia, from lower to upper mountain belt, on grassy slopes, bushes, edges, along the banks of rivers and lakes, ditches.

Recommendations for use in the arid ornamental landscaping and gardening: for planting along the banks of ponds, for greening damp areas. It is suitable for container gardening or as an addition to aromatic herb garden. Can be planted in cultivated beds. It grown in light (sandy), medium (loamy), hard (clay) soil. It is not necessary for the soil to be well drained. It can grow in semi or areas with no shade. Needs regular watering. Propagation by seeds or by division. Attracts bees and butterflies.

***Origanum vulgare* L.**

*Origanum vulgare*is an aromatic rhizomatous plant 30-50 cm in height (Photo 102). Leaves are oblong-ovate. The flowers small. Calyx is herbaceous, campanulate, 5-toothed with 13 veins. The corolla is double-lipped. Stamens 4. Bracts are obovate-elliptic, dark purple in the upper part. Corolla is red, rarely pink or whitish with a tube protruding from the calyx. Blooming is observed in July–August.

The species is distributed in the Caucasus, from Europe, Mediterranean to Central Asia. In Armenia it occurs in all floristic regions, in bushes, forests, meadows, steppes, at an altitude of 1200–2000(2200) m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for sunny borders, rocks and hills, cottage gardens, Mediterranean gardens, or containers. The plant is used in garden floriculture to decorate flower beds. Propagate by seed or by division in autumn or spring. It thrives in full sun, dry to medium, well-drained soils, tolerates heat and drought, cold and frost, intolerant of high humidity. It

prefers a hot, relatively dry climate, but does well in other environments. *Origanum vulgare* contains many cultivars: 'Aureum', 'Greek Kaliteri', 'Hot & Spicy', 'Nana' and others.

***Phlomis orientalis* Mill.**

Phlomis orientalis is a perennial plant 20-50 cm tall (Photo 103). Basal leaves are ovate to lanceolate, cordate at the base, densely white tomentose, cauline wrinkled. Bracts are tomentose, much shorter than calyx. Corolla yellow, about 30 mm long. Blooming is observed inJune–July.

The native range of the species is Transcaucasia to West Iran. In Armenia it is distributed in Aragats, Lori, Sevan, Yerevan, Darelegis, Zangezur, Meghri floristic regions, in the lower and middle mountain belts, on dry stony slopes.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in Mediterranean style gardens, in groups on lawns or open spaces, perfect for dry borders. Dry plant inflorescences left in the garden retain ornamental value throughout the winter, and are also of interest for floral compositions. It grows succefully in sunshine or to partial shadeand moist, well-drained soil.

***Phlomis pungens* Willd**.

Phlomis pungens is a perennial plant 40-70 cm in height (Photo 104). Leaves are ovoid-lanceolate or oblong-lanceolate, crenate. Flowers are collected in pseudo-whorls forming spike-shaped inflorescences. Calyx ishairy with 10 veins and 5 teeth. Bracts are almost equal to calyx, setaceous-hairy. Corolla pink. Blooming is observed inJune–July.

The species is very common in Transcaucasia, East Europe, EastMediterranea, Anatolia, Iran, Syria, Middle Asia. In Armenia it is distributed in all floristic regions on dry herbaceous steppe slopes, fallow lands, along rivers, at an altitude of 800–1800 m above sea level.

Recommendations for use in arid ornamental landscaping and gardening: for planting in Mediterranean style gardens, in groups on lawns or open spaces, for dry borders. It grows successfully in well-drained soil in full sun or partial shade. The plant retains ornamental value during both flowering and autumn fruiting periods, is of interest for dry floral compositions.

***Salvia ceratophylla* L.**

Salvia ceratophylla is a perennialor biennial herbaceous plant 20-50 cm in height (Photo 105). The leaves are pinnately dissected, densely pubescent on both sides. The corolla is white-yellowish, 15-20 mm long. Bracts are ovate, about 20 mm long, with prickly apices. The calyx is about 10 mm long, with long 2-2.5 mm, pointed tips on the teeth. The pubescence of the inflorescence consists of wide multicellular and stalked-glandular hairs. Flowering is observed in June–August.

The native range of the species isthe Caucasus, East Mediterranean to Turkmenistan and Afghanistan.In Armenia it is distributed in Yerevan, Darelegis, Meghri floristic regions, from the lower to middle mountain belt. on dry slopes, weedy places.

Recommendations for use in arid ornamental landscaping and gardening: for lining paths in gardens and parks, as a component in continuous flowering flower beds, and in combination with other types it will make a spectacular mixborder. Propagates by seeds, which are sown in early spring in an open area. It is considered a good honey plant.

Salvia hydrangea DC. ex Benth.

Salvia hydrangea is a semishrub with yellowish stems 30-50 cm in height (Photo 106). Leaves unpaired pinnate. Flowers in 4-6 pseudo-whorls. The calyx membranous, two-lipped with a 3-toothed upper lip, reddish, grows after flowering. The corolla two-lipped with an entire upper lip and a 3-lobed lower lip. Style with 2-lobed stigma. Blooming is observed in May–July.

The native range of the species is South Transcaucasia, North-East Anatolia, Iran. InArmenia it is distributed in Shirak, Aragats, Yerevan, Darelegis floristic regions, from the lower to the middlemountain belt, on dry rocky slopes, at an altitude of 800 – 1800(2000) m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: it is suitable for to Mediterranean style gardens, when planting in small groups against the background of lawns or open spaces. Propagated by seeds, cuttings and division.

Salvia limbata C. A. Mey.

Salvia limbate is a perennial plant 20-40 (50) cm in height. Leaves are oblong or ovate, heart-shaped at the base, crowded at the base of the stem. Inflorescence is paniculate, pubescent with flat hairs. Bracts fall early, 3-5 mm long. Calyx is two-lipped with a 3-toothed upper lip, during flowering 7-8 mm long. Corolla whitish-yellow, about 20 mm long. Style is with 2-lobed stigma. Blooming is observed in May–July.

The species is native to Transcaucasia, Talysh, Anatolia, Iran. In Armenia it is distributed in Shirak, Ijevan, Sevan, Gegham, Yerevan, Darelegis, Zangezur, Meghri floristic regions, from the lower up to the middle mountain belt, on dry slopes, in stony semideserts, at an altitude of 800–1200(2200) m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: when planting in small groups against the background of lawns or open spaces, Mediterranean and scree gardens. Propagating can be done by taking tip cuttings at the end of the summer, by side shoots and division.

Salvia nemorosa L.

Salvia nemorosa is a perennial plant 35-90 cm tall (Photo 107). The stems are branched in the upper part, densely leafy. The lower stem leaves are oblong or slightly ovate, 3.5-10 cm long, 1.5-3 cm wide. Bracts are large, longer than the calyx or equal to it. Inflorescences is simple, with 1-2 pairs of lateral branches exceeding the axis of the inflorescence; rarely inflorescence solitary. Flowers on short white-pubescent pedicels with two linear pubescent bracts, collected in 4-6-flowered false whorls. Calyx pubescent along the veins, 1/3 incised. Corolla is dark purple, 10-16 mm long, shortly pubescent outside. It blooms in June-August (September).

The species is native to Central Europe, West, Middle and Central Asia. In Armenia it is distributed in all floristic regions from the lower to the upper mountain belt, on dry and steppe slopes, edges, weedy places.

Recommendations for use in the arid ornamental landscaping and gardening: in perennial borders, Mediterranean gardens, butterfly and cottage gardens. *Salvia nemorosa* in garden design with its impressive flower shape, triggers varied contrasts together with other flower shapes or with silvery-leaved plants or various ornamental grasses. It also looks attractive in rose beds, in prairie style planting schemes and wildlife gardens. During the blooming season, the fragrance of Salvia nemorosa attracts many bees and butterflies. It likes a bright location and direct ful sun – the more sun the plant receives, the more abundant the flowering will be. It is low-maintenance, prefers a moderately nutrient-rich and water-permeable soil, good drainage, and moderate weekly watering. Easy to grow and propagate. There are numerous cultivars widely grown in horticulture with flowers ranging in color from violet, to violet-blue, rosy pink, and even white. All are perennial, with numerous leafy stems growing from the base at the beginning of summer.

***Salvia sclarea* L.**

Salvia sclarea is herbaceous short-lived perennial or biennial plant 100-125 cm in height, with a basal rosette of leaves (Photo 108). Leaves are broad, oval to heart-shaped, gray-green. Inflorescence is a multibranched panicle with whorls of tiny bluish pink or pale creamy-white flowers and large papery purple-pink bracts.

The species is native to the Caucasus, northern Mediterranean Basin, along with some areas in North Africa and Central Asia. In Armenia it is distributed in Ijevan, Sevan, Yerevan, Darelegis, Zangezur, Meghri floristic regions, from the lower to the upper mountain belt, on stony and gravelly slopes, outcrops, among bushes, weeds in fields and gardens; cultivated.

Recommendations for use in the arid ornamental lanscaping and gardening: for planting in a group or as a single plant in borders and flowerbeds, for herb gardens, sity gardens, cottage gardens or containers. It can also be planted in flower pots. Very adaptable plant, of ornamental interest throughout the growing season, attracts butterflies and bees. Easy to grow, enjoys full sun, medium moisture, well drained sandy or gravelly soils, propagate by seed.

***Saturea macrantha* C. A. Mey**

Saturea macrantha is a semi-shrublet 30-50 cm in height, with numerous stems woody at the base (Photo 109). Leaves are entire with numerous dotted glands. The inflorescence elongated spike-shaped. Flowers in loose pseudo-whorls on pedicels in leaf axils. Corolla is 12-15 mm long, two-lipped with a straight tube and short stamens. Calyx is with 10-13 veins, 5-toothed. Blooming is observed in July–August.

The species is native to Transcaucasia, Anatolia, Iran, Iraq. In Armenia it is distributed in Sevan, Darelegis, Zangezur, Meghri floristic regions in rocks and dry stony slopes, at an altitude of 1200–1800 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds and garden beds, scree gardens. The species require sun and well-drained soil. It is propagated by seeds, cuttings and division.

Scutellaria orientalis L.

Scutellaria orientalis is a perennial herb 10-25 cm in height, slightly woody at the base (Photo 110). Bracts leaves membranous, entire or serrated, stem leaves are ovate, small (1-3 cm long), white-felt below. Inflorescences are quadrilateral. Flowers are solitary in the axils of covering leaves form racemose inflorescences. Calyx is tubular, the corolla two-lipped. Stamens are 4. Blooming is observed in June–July.

The species is distributed in Transcaucasia, Iran. In Armenia it is found in all floristic regions, on dry stony places, on screes, limestones, at an altitude of 1800 – 2200 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for carpet beds to create a carpet of bright pastel yellow flowers, rocky hills decoration, for borders, rock gardens, Mediterranean and country gardens, ground cover. It is drought resistant and winter hardy. It can be grown in any semi-shaded or sunny area with average soil, attracts butterflies and bees, great for pollinating insects.

Stachys inflata Benth.

Stachys inflata is a perennial semishrub plant 20-50 cm in height (Photo 111). Branches are erect, sterile shoots at the base whitish-gray or yellowish pubescence. Leaves 2-4 cm in diameter, oblong or elliptical, entire, felted silvery, covered with stellate and branched hairs. Flowers are 2-2.4 cm long, pink or light purple, from an inflated calyx, 3 or more in remotely whorled. Blooming observes in May–June.

The native range of the species is the Caucasus, North-East Anatolia to Iran. In Armenia it is distributed in Yerevan, Darelegis, Meghrifloristic regions, on dry slopes, at an altitude of 600–1500 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: it is suitable for Mediterranean style gardens, for rockeries, for planting in groups on lawns. In landscaping schemes some of countries it is grown in gardens as an ornamental plant. This species is highly adapted to hot and dry to cold or dry mountainous regions. It needs to be grown in a full sun position, on a lean substrate with very good drainage. Propagate by seeds and division. Another native sage species, *Stachys lavandulifolia* Vahl, is used quite often in rock gardens and can also be used for landscaping purposes.

Teucrium chamaedrys L.

Teucrium chamaedrys is a perennial herb or semishrub 15-20(40) cm in height. Leaves entire with short petioles up to 3 mm long. Pseudo-whorls collected in racemose or spike-shaped inflorescences. Corolla light-purple. Blooming is observed in June–August.

The species is native to the Caucasus, Asia Minor, Iran. In Armenia it is distributed in all floristic regions in glades and edges of forests, shrubs, herbaceous and steppe slopes, stony sites, at an altitude of 1200 – 1700 (1900) m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for borders in flower beds, rocky and Mediterranean style gardens, garden edging, cottage gardens. It easy grown in neutral or alkalin, well drained soils, in full sun. It

may be propagated by vegetative cuttings or by the division of established clumps. Flowers are visited by Honey bees.

Teucrium parviflorum Schreb.

Teucrium parviflorum is a perennial plant 40-60 cm high. Leaves 1-2 pinnately dissected with linear lobes. Flowers in pseudo-whorls, collected in a loose, racemose inflorescence. Calyx with 10 veins, 5 teeth. Corolla two-lipped, pink or purple, Stamens 4. Blooming is observed in June–August.

The species is native to Transcaucasia, Anatolia, Lebanon, Syria, Iraq, Iran. In Armenia it is found in Aparan floristic region on dry slopes and weedy places at an altitude of 1500–1900 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: in gardens and as a hedge plant, to create rock gardens, decorate hills, in herb gardens and containers. It is typically grown in full sun and dry, well-drained soils. It is drought tolerant once established. Propagation is by seed or cuttings.

Teucrium polium L.

Teucrium polium is a perennial pubescent plant 40-60 cm in height (Photo 112). Leaves are oblong crenate with curled edges. Pseudo-whorls are collected in a loose, racemose or paniculate inflorescence. Calyx is with 10 veins, 5 teeth. Flowers small, 5-8 mm. Corolla is two-lipped, white. Stamens 4, exposed from the corolla. Blooming is observed in June–August.

The native range of the species is the Caucasus, Southern Europe, Mediterranean, West and Middle Asia. In Armenia it is distributed in all floristic regions, from the lower to the upper mountain belt, on dry stony, sandy, limestone slopes.

Recommendations for use in the arid ornamental landscaping and gardening: for borders in flower beds, rockarries, Mediterranean style gardens. The foliage releases a pleasant aromatic scent. Succeeds in any moderately good well-drained soil in full sun. Propagated by seeds and division.

Thymus kotschyanus Boiss. et Hohen.

Thymus kotschyanus is a perennial plant (5)7-15 cm in height (Photo 113). Leaves are ovate to lanceolate, hard, glabrous or finely sparsely pubescent, about 10 mm long. Flowers in false whorls of shortened dichasia in terminal capitate inflorescences. Calyx tubular or tubular-campanulate, corolla with straight tube, two-lipped, white or pale pink. Blooming is observed in June – September.

The native range of the species is the Caucasus, Anatolia, Iran, Iraq. In Armenia it is distributed in all floristic regions, from the lower to the upper mountain belt, on dry slopes, in friganoid and partly in mountain-steppe vegetation.

Recommendations for use in ornamental landscaping and gardening: for making rock gardens used as a groundcover, suitable for aromatic and cottege gardens, Mediterranean style and scree gardens. Creates a spicy warm smell in the garden, giving the space a homely feel. Bright thyme leaves, combined with low-growing plants, can decorate any container and small flower bed.

Photo 99. *Eremostachys laciniata*

Photo 100. *Lamium album*

Photo 101. *Mentha longifolia*

Photo 102. *Origanum vulgare*

Photo 103. *Phlomis orientalis*

Photo 104. *Phlomis pungens*

Photo 105. *Salvia ceratophylla*

Photo 106. *Salvia hydrangea*

Photo 107. *Salvia nemorosa*

Photo 108. *Salvia sclarea*

Photo 109. *Saturea macrantha*

Photo 110. *Scutellaria orientalis*

Photo 111. *Stachys inflata*

Photo 112. *Teucrium polium*

Photo 113. *Thymus kotschyanus*

Liliaceae

Gagea commutata K. Koch

Gagea commutata is an ephemeroid, herbaceous bulbous plant (Photo 114). Basal leaves 2, under inflorescence 3-5. The stem strong, shortened. Perianth large 15-18 mm, outer lobes yellow on the inside, green on the outside with a wide yellow border around the edges, the inner lobes yellow on both sides. Inflorescence 1-4(5) flowered. Stamens 6, stigma capitate, capsule triangular, ovate-oblong. Bulb ovoid with brown scales. Blooming is observed in March–April.

It is distributed in East and South Transcaucasia, Iran. In Armenia it occurs in Zangezur floristic region, in lower and middle mountain belts on dry rubble slopes among bushes, at an altitude of 900 – 1900 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: in mass plantings for creating early spring flower beds, for rock gardens. It can be grown in full sun or in partial shade, the bulbs need well-drained soil supplemented with a little sand or loam. Vegetative propagation using bulbs. *Gagea* species are among the earliest flowers to emerge in the spring months, making them very popular with gardeners.

Gagea tenuifolia Fomin

Gagea tenuifolia is an ephemeroid, herbaceous bulbous plant with 1 basal and 3 subfloral leaves (Photo 115). Inflorescence with 2-5 flowers. The lobes of the outer perianth greenish outside, covered with white hairs, the inner one greenish outside, in the middle with a bright green stripe, along the edges with a transparent border. Stamens 6, stigma capitate, capsule is round-triangular. The bulb ovoid, with brownish-gray scales. Blooming is observed in March–April.

The species is found in the Caucasus, Anatolia, Iraq, Iran, Afghanistan. In Armenia it is distributed in Yerevan and Darelegis floristic regions, in the lower and middle mountain belts, on dry stony slopes among shrubs, at an altitude of 900 – 1900 mabove sea level.

Recommendations for use in the arid ornamental landscaping and gardening: in mass plantings for creating early spring flower beds, for rock gardens. The seeds are spread by the wind. Grows well in partial shade and is not picky about soil. Reproduction by numerous daughter bulbs (at the end of June after the above-ground parts die off) and seeds. Sowing seeds before winter or cold stratification is required for 3-4 months.

Tulipa biflora Pall.

Tulipa biflora is a perennial bulbous plant with stem 7-18 cm in height, 1-3(4) flowered (Photo 116). Leaves usually 2, with smooth or slightly wavy edges. Perianth 18-35 mm long, purple-greenish on the outside, white on the inside with a yellow base. Stamens 6, yellow. The capsule is 3-nested, the seeds are numerous, flat. Blooming is observed in March–April.

The species is distributed in Transcaucasia, is native to East Europe, South-West and Middle Asia. In Armenia it is found in Yerevan, Darelegis, Zangezur, Meghri floristic regions, from the foothills to the upper mountain belt on dry stony, gravelly, gypsum-bearing slopes, tertiary red clays, saline places, limestones hammada, sagebrush semidesert, juniper woodlands, mountain steppes, at an altitude of 700–2300 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: in gardens and parks, and also as a cut flower, for mass plantings for creating early spring flower beds, for borders, cottege gardens, rock gardens, patio containers. To be planted in fall. Easy to grow propagate. Propagation is done by division of the bulbs or by seed. Seeds should be sown in autumn or spring and will germinate in 1-3 months. Performs best in full sun in a warm position with sharp drainage and protection from excessive wet. Many types of tulips are bred as favorite ornamental plants, they were especially in fashion in the 17th century, when they were very expensive. Quite a large number of varieties, forms and hybrids of tulips are known. Tulips were originally found in a band stretching from Southern Europe to Central Asia, but since the seventeenth century have become widely naturalised and cultivated. Breeding programmes have produced thousands of hybrids and cultivars in addition to the original species (known in horticulture as botanical tulips). They are popular throughout the world, both as ornamental garden plants and as cut flowers.

Linaceae

Linum austriacum L.

Linum austriacum is a perennial herbaceous plant 20–60 cm in height with a rhizome. The stem is mostly erect, unbranched, branched in the inflorescence. The leaves are linear, with one vein, the lower ones are obtuse, the upper ones are pointed and entire. The flowers are collected in terminal asymmetrical forked inflorescences, bisexual, five-membered, on long pedicels. Sepals are ovate, pointed, membranous along the edge. The petals of the corolla are triangular-obovate, light blue with dark veins. Flowering time is from May to July.

The native range of this species is the Caucasus, Crimea, E. Central Europe to West and Central Asia. In Armenia it is distributed in Shirak, Ijevan, Sevan, Yerevan, Darelegis, Zangezur floristic regions, on dry mountain slopes.

Recommendations for use in the arid ornamental landscaping and gardening: for flower beds in gardens and parks, for cottege gardens, to grow in lawns and open spaces, to create a Mauritanian lawn. The plant can be propogated by division and by taking cuttings in the fall once flowering season is over. It prefers full sun and well-drained soil. It is drought tolerant and can tolerate a wide range of soil types. It should be fertilized regularly with a balanced fertilizer.

Lythraceae

Lythrum salicaria L.

Lythrum salicaria is a perennial more or less pubescent plants 30-100 cm in height (Photo 117). Leaves are oblong-lanceolate, with a heart-shaped or rounded

base. Flowers are collected in paniculate inflorescences. Corolla is purple. Petals 6-4, the cup is tubular, stamens 2-12 attached to the calyx tube. Capsule bilocular, multi-seeded, opening with two valves, oblong-oval. Blooming is observed in June–August.

The species is widely distributed in the Caucasus, in temperate Eurasia, North Africa, North America, Australia. In Armenia it is found in all floristic regions, in damp places along the banks of rivers, from the lower to the upper mountain belt, at an altitude up to 2000 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in water basins, along the banks of ponds. *Lithrum salicaria* is happiest in wet ground and poorly draining or clay soil, it can withstand various pH levels, from mildly acidic to mildly alkaline, and can adjust to sandy, loamy, and clay soil conditions. It can also be submerged in low levels of water as a marginal plant. It can survive in most light levels, although it will grow most vigorously in full sun. L. salicaria can survive for over 20 years if conditions are right. It is pollinated by bees, butterflies, and even moths, and it is often visited by dragonflies and damselflies in the summer months. *L. salicaria* seeds germinate best in wet soil with relatively warm temperatures and even germinates fully submerged in shallow water. The plant propagates by seeds, cuttings. Propagation of rooted *Lithrum salicaria* is done by digging up and separating the roots during the dormant periods of the plant, in autumn or spring. Seeds germinate best in wet soil with relatively warm temperatures and even germinates fully submerged in shallow water. When growing at the periphery of a pond, it is recommended to use a planter with a mesh basket for easier maintenance in the future.

Malvaceae

Alcea rugosa Alef.

Alcea rugosa is a biennial or perennial herbaceous plant with a racemose inflorescence to 2 m in height, usually densely pubescent by simple and stellate hairs (Photo 118). Leaves deeply 3-7 lobed. Corolla 30-60 mm, bright yellow. Nectaries horizontally-elongated. Seeds kidney-shaped. Blooming is observed in June–October.

The native range of the species is East Europe to the Caucasus. In Armenia it is distributed Ijevan, Aparan, Sevan, Yerevan, Darelegis, Zangezur floristic regions, from the lower to the upper mountain belt, on dry stony slopes, cultivated and fallow fields, bush thickets, sparse woodlands, mountain steppe, roadsides, at an altitude of 800–2200 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: it is good addition to beds and borders, cottage gardens and wall-side borders and fence, is siutable for planting in groups against the background of lawns. Anold garden plant, providing architectural height to flower bordersand a long flowering period.

Althaea armeniaca Ten.

Althaea armeniaca is a tall perennial herb with villous stems (Photo 119). The leaves are deeply divided into three ovate-lanceolate lobes, densely hairy. Corolla is pink, 12-18 mm long. Blooming is observed in May–September.

The species is found in Caucasus, Middle Europe, southern Russia, Anatolia, Iran, Middle Asia. In Armenia it is distributed in Gegham, Yerevan, Zangezur, Meghri floristic regions, from the lower to middle mountain belt, in bushes, near roads, in vineyards, along the banks of rivers and ditches.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds and garden beds, for late autumn flower beds, for planting in groups against the background of lawns or open spaces. It is often grown in moist, slightly saline habitats. It is suitable for a sunny spot at the back of a border or they can be grown in a cottage or wildflower garden where the soil is moist.

***Althaea cannabina* L.**

Althaea cannabina is a perennial herbaceous plantwithan erect, much-branched stem 50-180 cm tall (Photo 120). Leaves deeply 5-sect, greyish-green, shortly scarbrous. Corolla purple-violet, 18-30 mm long. Blooming is observed in June–September.

The species range is native to the Caucasus, Central andSouth Europe to North Pakistan. In Armenia is found in Ijevan, Yerevan, Darelegis, Zangezur, Meghri floristic regions in bushes, marshy places, edge of forest, fallow fields, ruderal, roadsides, at an altitude 400–1600 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds and garden beds, for planting in small groups against the background of lawns or open spaces, for late autumn flower beds, can be used to create stony slides. Propagated by seeds or by division in spring or autumn. Tolerate some soil salinity.

***Althaea officinalis* L.**

Althaea officinalis is a perennial herbaceous erect plant (Photo 121). Leaves 3-5 cm long, almost simple or slightly lobed, ovate-triangular, dense, velutinous indumentum. Flowers 9-14 mm in diameter, many in fascicles, on short pedicels, corolla pale-pinkish or almost white. Flowering is observed in July–October.

The species is native to the Caucasus, Europe, West and Middle Asia, Afghanistan, Siberia. In Armenia it is distributed in Yerevan floristic region, on saline meadows, canal and river banks, at an altitude 700–800 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds in gardens and parks, whenplanting in small groups against the background of lawns or open spaces, for late autumn flower beds. Can be grown as a hedge, used as backstage, giving a soft gray color to the compositions.

***Hibiscus trionum* L.**

Hibiscus trionum is an annual plant 10-50 cm in height (Photo 122). Stem is erect, angularly curved at the nodes, covered with stiff hairs, branched; the lower branches are elongated, ascending or recumbent. Leaves with petioles equal or almost equal to the plate. The lower leaves are heart-shaped, rounded, crenate, the remaining 3-5 are separate, with obovate or oblong segments. Calyx pale, bell-shaped, with twenty hairy purple longitudinal veins, glabrous or with stellate hairs between the

veins, with flowers 10-15 mm tall, with fruits 15-30 mm tall. Corolla 17-33 mm, pale yellow or whitish. Petals at the base with a large purple spot, obovate or oblong-obovate, rounded in the upper part, narrowed downwards, covered with scattered hairs on the outside. Flowering is observed in June-September.

It grows in the Caucasus, in Europe (Eastern Mediterranean) up to the foot of the Alps, Africa, Eastern Siberia and the Far East, Western and Central Asia, Australia, invasive in America. In Armenia it is distributed in Shirak, Aragats, Lori, Yerevan, Darelegis, Zangezur, Meghri floristic regions, mostly in the lower mountain belt, sometimes rises to the middle or upper belts, in weedy places, in various crops, in vegetable gardens, in orchards, on fallow lands.

Recommendations for use in the arid ornamental landscaping and gardening: as a filler plant in a sunny ornamental border, or displayed as the main feature of a patio container. Dry *Hibiscus trionum*s shoots with unusual fruits are good in dry bouquets. It forms a compact mound of dark green leaves, which form the perfect backdrop for its exquisite flowers. Flowers open in the morning for only a few hours, and close in the afternoon. Their lives last only a few hours. This is well reflected in its name in English - "Flower-of-an-hour". Nevertheless, the flowering period of the whole plant as a whole last more than a month, since new buds form in the axil of each leaf. Under the right conditions, flowers appear every day. After the corolla falls, a swollen fruit forms on the pedicel. This is a five- or many-seeded hairy black box with kidney-shaped or oval-heart-shaped dark seeds. Prefers loose sandy soils, warmth and moisture. There are several varietal forms of *Hibiscus trionum*. It is easy to grow by seeds, sown in March for seedlings or in May in open ground. The soil should be loose and nutritious.

***Malva silvestris* L.**

Malva silvestris is a perennial herbaceous plant. Leaves are orbicular-cordate, 5-7-lobed. Petals are large, 20-30 mm long, pinkish-violet. Blooming is observed in May–September.

The species is distributed in the Caucasus, West Europe, North Africa and Asia. In Armenia it is found in Lori, Ijevan, Yerevan, Darelegis, Zangezur, Meghri floristic regions in gardens, vineyards, bushes, edge of forest, ruderal places, at an altitude of 400–1500 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds and garden beds, in mixborders, for planting in small groups against the background of lawns or open spaces, for late autumn flower beds. It has a very long flowering period, after cutting it grows back and continues to bloom. It is propagated by seeds. A site with a soil of medium mechanical composition and a neutral or slightly acid reaction of the medium is preferable.

Photo 114. *Gagea commutata*

Photo 115. *Gagea tenuifolia*

Photo 116. *Tulipa biflora*

Photo 117. *Lythrum salicaria*

Photo 118. *Alcea rugosa*

Photo 119. *Althaea armeniaca*

Photo 120. *Althea cannabina*

Photo 121. *Althea officinalis*

Photo 122. *Hibiscus trionum*

Orchidaceae

Anacamptis pyramidalis (L.) Rich.

Anacamptis pyramidalis is a perennial herbaceous plant 25-60 cm tall (Photo 123). Tubers entire, shortly cylindric or ovate. Inflorescence is ovate-pyramidal. Bracts shorter than flowers. Flowers carmine-red, rarely rose-pink or white. Lateral sepals more or less spreading. Dorsal sepal connivent with petals, forming a hood. Labellum 6-9 mm long, 3-lobed, with 2 parallel ridges at the base. Spur cylindric, equaling or exceeding ovary. Blooming is observed in June –August.

The native range of the species is the Caucasus, Europe, Mediterranean, West Asia. In Armenia it is distributed in Upper Akhuryan, Lori, Ijevan, Sevan, Gegham, Zangezur, Meghri floristic regions, in open woodlands, meadows, stony slopes, at an altitude of 700–2000 m above sea level.

Recommendations for use in the arid ornamental landscaping: suitable for flowerbeds and garden beds, in mass plantings. *Anacamptis pyramidalis* can be cultivated into wildflower gardens or naturalistic landscapes to add a touch of wild beauty, in rock gardens to provide a splash of color and elegance among rocks and other elements, along borders, pathways, or garden edges using as accents. It prefers well-draining soil and thrive in sunny to partially shaded locations. Due to their delicate nature and unique appearance, it can be a captivating addition to various garden styles, enhancing the visual appeal and providing habitat for pollinators.

Cephalanthera rubra (L.) Rich.

Cephalanthera rubra is a perennial herbaceous plant with stems 20-50 cm in height (Photo 124). Leaves lanceolate, more than 4 cm long. Pedicels, ovary and stem densely puberulent. Inflorescence 5-15 cm long. Flowers are rose. Blooming is observed in April – September.

The species is native to the Caucasus, Europe, Mediterranean, South-West Asia. In Armenia it is distributed in Ijevan, Aparan, Sevan, Yerevan, Zangezur, Meghri floristic regions, in deciduous, coniferous and mixed forests, mainly on gravel soils, in places where rocky limestones emerge, at an altitude 700–2000 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds and garden beds, when planting in small groups against the background of lawns or open spaces, in mass plantings when creating early spring and autumn flower beds, can be used in shaded rock gardens. It thrives in dappled sunlight or filtered light, grows well in soils rich in organic matter. The pH of the soil should be slightly acidic to neutral.

Ophrys oestrifera M. Bieb. subsp. *oestrifera*

Ophrys oestrifera subsp. *oestrifera* is a perennial herbaceous plant with spherical root tubers and a stem up to 50 cm in height. Stem at the base with 2-5 oblong, blunt leaves. The inflorescence is racemose, sparse with 3-8 (up to 13) flowers. The tepals of the outer circle of the perianth are mauve with three green

veins, the inner circle is velvety, pmauve, with horns. The lip is velvety, broadly oval, three-lobed. Its lateral lobes bear one densely hairy brown horn with a green tip. The middle lobe is rounded, with an appendage turned upward. On the surface of the lip is a horseshoe-shaped bluish-brown mark, surrounded by a double yellow border. Blooms in May–June.

The native range of the species is the Caucasus, South and South-East Europe, East Mediterranean, Crimea, West Asia. In Armenia it occurs in Ijevan, Zangezur, Meghri floristic regions, in open woodlands, wet meadows and stony slopes, at an altitude of 700–2000 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: in mass plantings when creating early spring flower beds, into wildflower gardens or naturalistic landscapes. *Ophrys* orchids are symbiotic species, they can only obtain sufficient nutrients through their symbiotic relationship with a fungus in the soil. Typically prefers well-draining soils in sunny to partially shaded locations, often thrive in nutrient-poor soils similar to their native habitats. Reproduce only by seeds.

***Orchis purpurea* Huds.**

Orchis purpurea is a perennial herbaceous plant. Hood dark-purple outside. Segments of middle lobe with irregularely crenulate or dentate margins, Labellum with dark-purple papillas. Spur curved, nearly half as long as ovary. Leaves ovate-lanceolate or broadly lanceolate. Stems 40-70 cm in height. Blooming is observed in May–July.

The species is native to the Caucasus, Europe, Mediterranean, Crimea, Anatolia. In Armenia it is distributed in Lori, Idjevan, Sevan, Zangezur, Meghri floristic regions, in open forests, shrubs, at an altitude 600– 2200 mabove sea level.

Recommendations for use in the arid ornamental gardening: suitable for flowerbeds and garden beds; whenplanting in small groups against the background of lawns or open spaces; in mass plantings when creating early spring flower beds.

***Orchis stevenii* Rchb. f.**

*Orchis stevenii*is a perennial herbaceous plant. Hood is ash-greyish-rose outside. Segments of middle lobe with entire margins. Labellum with dark hairs. Spur usually 1/3 or half as long as ovary, slightly widened at apex. Leaves oblong or oblong-lanceolate. Stems 20-40 cm. Blooming is observed in May–July.

The species occurs in the Caucasus, Anatolia, Iran. In Armenia it is found in Upper Akhuryan, Ijevan, Sevan, Meghri floristic regions, at an altitude of 700–2000 m above sea level, in open forests, meadows, sometimes in wet places by lakes and streams. It is included in the Red Book of Plants of Armenia under the categoryEndangered species.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds and garden beds; whenplanting in small groups against the background of lawns or open spaces; in mass plantings when creating early spring flower beds. Prefers soils rich in limestone, well-lit areas. Like many orchids, *Orchis stevenii* relies on specific pollinators for its reproduction. In this case, the primary pollinators are insects such as bees and flies. The flowers often have intricate mechanisms to ensure that pollen is transferred to the pollinators during their visit.

Platanthera chlorantha (Custer) Rchb.

Platanthera chlorantha is a perennial herbaceous plant. Stems are 30-50 cm in heght. Leaves are basal, subopposite, obovate or elliptic, narrowed towards base, obtuse at apex. Flowers 20-25 mm in diameter. Dorsal sepal orbicular- or triangular-cordate, forming with petals a hood; lateral sepals obliquely ovate or ovate-lanceolate. Petals linear-lanceolate. Labellum strap-shaped or ligulate. Spur horizontal or obliquely downwards directed, slightly curved, usually inflarted towards base, 1.5-2 times exceeding ovary. Blooming is observed in June–July.

The species is native to the Caucasus, Europe, South-West Asia. In Armenia it is distributed in all floristic regions, except Darelegis, in light forests and bushes, through forest clearings and forest edges, at an altitude of 700–2700 m above sea level.

Recommendations for use in the arid ornamental gardening: suitable for flowerbeds and garden beds; when planting in small groups against the background of lawns or open spaces; in mass plantings when creating early spring flower beds. It prefers calcareous soils and areas with moderate shade. *Platanthera chlorantha* is notable for its beautiful and intricate flowers with pleasant fragrance that attracts pollinators, especially moths during the night. Like many orchids, *Platanthera chlorantha* has a complex pollination mechanism.

Papaveraceae

The *Papaveraceae* family includes a wide range of species, many of which are well-known for their vibrant and attractive flowers. The family's distinctive flowers make it an interesting and important group in the world of horticulture. Various species of *Papaveraceae* are common garden ornamentals.

Glaucium corniculatum (L.) Curt.

Glaucium corniculatum is an annual or biennial plant 10-40 cm high. Leaves deeply pinnate. Buds 1-2 (3) см long. Petals 1-3 см long dark red or orange, with black spot near base. Capsule slightly curved, peduncles shorter than leaves subtending them. Blooming is observed in May- July.

The native range of the species is the Caucasus, Europe, Mediterranean, Asia. In Armenia it is distributed in Shirak, Ijevan, Sevan, Yerevan, Darelegis, Zangezur, Meghri floristic regions, on dry stony slopes, weedy places, roadsides, at an altitude 400 – 1800 m above sea level.

Recommendations for use in the arid ornamental landscaping: suitable for for creating stony gardens, decorating hills and rocks, in mass plantings when creating early spring flower beds, to create a Mauritanian lawn. It can be used as an accent plant in rock gardens, or in naturalized landscapes. The large orange-yellow flowers with characteristic horn-like projection on the base of the petals create a showy contrast against the grayish-blue waxy foliage, and can add a touch of exotic beauty to other garden settings. *Glaucium corniculatum* is distinctive and hardy plant, it is known for its adaptability challenging growing conditions, including sandy or rocky

areas. It thrives in full sun, on well-drained soils. Its unique flower and tolerance to conditions contribute to its popularity in ornamental horticulture.

***Papaver arenarium* M. Bieb.**

Papaver arenarium is an annual plant 10-40 cm high. Peduncles with adpressed pubescence. Capsule obconical or clavate. Blooming is observed in May –July.

The species is native to the Caucasus, CentralAsia.In Armenia it is distributed in Lori, Ijevan, Sevan, Yerevan, Darelegis, Zangezur floristic regions, on dry stony slopes, sandy places, at an altitude 400–2000 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: is well-suited for rock gardens, alpine gardens, and other areas with similar conditions, to create a Mauritanian lawn. It can be used as a ground cover or as an accent plant in rockeries. Its compact size and adaptability make it a suitable choice for smaller garden spaces. The delicate flowers add a touch of color to rocky and sandy landscapes. *Papaver arenarium* is valued for its ability to add visual interest to rocky and xeric gardens. This poppy species is known for its ability to thrive in challenging environments. Papaver arenarium is adapted to rocky and sandy habitats, such as dry slopes, rocky outcrops, and gravelly soils, it prefers well-drained soils.

***Papaver bipinnatum* C. A. Mey.**

Papaver bipinnatum is an annual or biennial plant 20-40 cm high. Peduncles with spreading hairs. Capsule oblong. Blooming is observed in May–July.

The species occurs in the Caucasus, Asia. In Armenia it is distributed in Yerevan, Zangezur, Meghri floristic regions, on dry stony slopes, sandy places, at an altitude 400 – 1200 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: it is often cultivated as an ornamental plant in gardens and landscapes, valued for its attractive foliage and flowers, making it a suitable choice for various garden settings, as well as to create a Mauritanian lawn. It can be used as an accent plant, in mixed borders, or as part of woodland gardens. The delicate appearance of its foliage can add a touch of elegance to the landscape. *Papaver bipinnatum* is characterized by its deeply lobed and finely divided leaves, which resemble the fronds of ferns. The foliage has a delicate and intricate texture, adding a unique visual element to the plant. The flowers of *Papaver bipinnatum are* typically a pale to medium shade of pink, with four petals and a prominent center containing the stigma and stamens. This poppy species thrives in a variety of habitats, including open woodlands, meadows, and rocky slopes. It prefers well-drained soils and can tolerate both full sun and partial shade.

***Papaver commutatum* Fisch. & C. A. Mey.**

Papaver commutatum is an annual plant 30-80 cm highwith hairy stalks and leaves. Petals bright-red, with black spot near base. The flower is bowl-shaped and about 8 cm in diameter, bright red with prominent black blotches at the bases of the petals. Blooming is observed in May– June.

The native range of the species is the Caucasus, Anatolia, Iran. In Armenia it is found in Ijevan, Sevan, Yerevan, Darelegis, Zangezur, Meghri floristic regions, on dry stony slopes and sandy places, at an altitude 400–2000 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: well-suited for rock gardens, borders, and other sunny areas in the garden, when plantinganding in small groups against the background of lawns or open spaces, in mass plantings when creating early spring flower beds, to create a Mauritanian lawn. *Papaver commutatum* is a favorite among gardeners and horticulture enthusiasts. It has been cultivated for use in wildflower gardens and naturalized landscape, to add vibrant color to various garden settings. It works well as border plants, in mixed flower beds, and as accents in rock gardens, can attract pollinators like bees and butterflies. This poppy species prefers well-drained soil and full sun to partial shade. The cultivar *P. commutatum* 'Ladybird' is a popular and easy garden annual. It bears many flowers on each plant and blooms from late spring to early summer. It is frequently a feature of cultivated wildflower meadows.

Papaver roseolum **M. V. Agab. & Fragman**

Papaver roseolum is an anual plant, with erect stems with the bristly long hair, 30-40 (70) cm in height. Leaves bipinnate, dimorphic, basal in wide obtuse segments. Pedicels 25-35 cm long, densely setose above and below. Alabaster is elongate-ovoid, apex towards obtusely conical, finely pubescent. Petals 20-24 mm long and 22-28 mm wide, ovate-wedge, pale pink, distinctly maculated in the basal part. Capsule 0.8-20 mm long, oblong-clavate. Blooming observes in April–May.

Papaver roseolum is endemic of Central Armenia, the species is distributed in Yerevan and Sevan floristic regions, occurs on roadsides, agricultural land and fallow fields, in *Artemisia fragrans* semidesert, on grassy slopes and in meadows, at an altitude of 800–2100 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: well-suited for garden beds, borders, rock gardens, when landing in small groups against the background of lawns or open spaces, in mass plantings when creating early spring flower beds, to create a Mauritanian lawn, for adding color and texture to ornamental gardens. Its delicate flowers make it suitable for cottage-style gardens, informal borders, and even as a focal point in mixed flower beds. *Papaver roseolum* holds cultural significance in various regions where it is grown. Its blooms have inspired artists and garden enthusiasts alike, and it has been a part of horticultural traditions for centuries spaces. Its beauty and adaptability to different garden styles make it a valuable addition to a wide range of landscaping designs. Rose Poppies thrives in well-drained soils and prefer full sun to partial shade. While they can tolerate some dry conditions, regular watering during dry spells can help promote healthy growth and flowering.

Roemeria refracta **(Steven) DC.**

Roemeria refracta is an annual plant 30-40 cm in height. Leaves pinnatisect, lobes oblong or linear. Petals dark red, with black spot near base. Blooming is observed in May–June.

The species is distributed in the Caucasus, Anatolia, Iran, Middle Asia. In Armenia it is found in Aparan, Yerevan, Darelegis, Zangezur, Meghri floristic regions, on dry loamy slopes, in fields, at an altitude 400–1200 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: decorate hills and rocks, to create rocky gardens, a Mauritanian lawn, for group and single plantings on borders, in mixborders, flower beds, groups on the lawn, as well as for cutting. Photophilous. Drought-resistant, needs moderate watering only in hot and dry summers. Does not tolerate prolonged waterlogging and stagnation of moisture on heavy, poorly drained soils. It is not demanding on fertility, grows and develops well in ordinary garden soils. It is most stable and decorative on permeable, loose, light, preferably sandy, moderately fertile soils. Does not tolerate transplantation well. Unpretentious, does not require special care. Cold-resistant. For group and single plantings on borders, in mixborders, for borders, flower beds, groups on the lawn, as well as for cutting. Propagated by seeds, which are sown directly in open ground.

Plumbaginaceae

Acantholimon fedorovii Tamamsch. et Mirzoeva

Acantholimon fedorovii is a cushion-shaped subshrub. Stems laxly foliated. Flower stalks longer than leaves, unbranched. Spike rachis flexuose. Petals pink. Blooming is observed in June.

The species is distributed in Southern Transcaucasia, Anatolia, North Iraq and North-West Iran. In Armenia it is found in Meghri floristic region in lower mountain belt, on dry stony slopes, between the rocksat an altitude of 700-800 m above sea level. The species is included in the Red Book of Plants of Armenia under the category Critically Endangeredspecies.

Recommendations for use in the arid ornamental gardening: to create rocky gardens, decorate hills and borders, for growing in wall crevices. It is difficult to propagate from seeds, tolerates better transplanting. It needs full sun and loves a well-draining, gritty soil. It prefers drier conditions, as found in native habitats. Being drought-resistant, it requires minimal watering.

Acantholimon glumaceum (Jaub. & Spach) Boiss.

Acantholimon glumaceum is a perennial plant, more or less pubescent. Leaves are triquetrous-aciform, (1)2-3(5) cm long, 1 mm wide, dull dark green. Spike unbranched or with 2-5 branches, 5-10 (15) cm long. Spikelets imbricate. Calyx tube 6-8 mm long, limb 5-6 mm long. Bracts usually 3, rarely 5. Calyx limb white or purplish-pink. Flowering is observed in August-September.

The species is native to the Caucasus, East Anatolia. In Armenia it is distributed in Upper Akhuryan, Shirak, Lori, Aparan, Sevan, Yerevan, Darelegis floristic regions, onstony slopes, subalpian open oak forests, *Juniper* open forests, tragacanth formations, at an altitude of (1000) 1500–2500(2700) m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create rockeries, decorate hills and borders or for growing in wall crevices. It needs

full sun minimal watering. пересадку. It is difficult to propagate from seeds, tolerates better transplanting.

Acantholimon takhtajanii Ogan.

Acantholimon takhtajanii is a cushion-shaped subshrub. Branches densely foliated. Leaves light glaucous green, glabrous. Bracts glabrous, outer ones ovoid triangular to narrowly triangular, inner ones ovate- or oblong spatulate. Calyx 13-16 mm long, petals pink, 3 times the length of the calyx limb. Flowering occurs in June–July (August).

The native range of the species is the Caucasus, North-East Anatolia. In Armenia it is found in Shirak, Lori, Sevan, Yerevan, Aparan, Darelegis floristic regions, on stony slopes, in phryganoid vegetation, mountain steppe, light open forests, at an altitude (800)1200–1800 (2200) m above sea level.

Recommendations for use in the arid ornamental gardening: to create rockeries, decorate hills and rocks or for growing in wall crevices. Light, sandy, well-drained soiland moderate watering are required. Propagated by seeds or transplantation, self-sowing.

Limonium meyeri (Boiss.) O. Kuntze

Limonium meyeri is a perennial herbaceous plant with thickened caudex. Leaves mostly basal, oblong, obovoid to broadly elliptic or oblong-obovate, narrowed into petiole, 15-30 cm long. Inflorescence 60-100(150) cm long, spreading, loosely panicle. Flowers small, five-membered, lilac. Blooming is observed in August–November.

The species occurs in the Caucasus, Europe, Anatolia, Iran, Central Asia. In Armenia it is distributed in Ijevan, Yerevan, Darelegis floristic regions, in sagebrush semidesert, on solonchaks, at an altitude 700–1200 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds, when plantingin small groups against the background of lawns or open spaces, to create a Mauritanian lawn, for garden beds creation in saline areas, as cutting plant to form dry bouquets. For cutting plants in protected ground, can be grow all year round, need good lighting, limited watering and an air temperature of 20-22 °C. The plant is watered only when it is necessary, and not abundantly, avoid stagnation of water. It can be propagated both by sowing seeds and by cuttings. Cuttings are harvested in autumn or late winter and plant to root in the sand in a protected place. Then the cuttings are transplanted into pots, and the next year they are finally planted. Division of the bush is made in early spring, choosing a well-developed plant. Many representatives of the genus *Limonium* are used as ornamental plants. Interest in them has now greatly increased both among arrangers, landscape designers and gardeners.

Photo 123. *Anacamptis pyramidalis*

Photo 124. *Cephalanthera rubra*

Photo 125. *Ophrys oestrifera* subsp. *oestrifer*

Photo 126. *Orchis purpurea*

Photo 127. *Platanthera chlorantha*

Photo 128. *Corydalis angustifolia*

Photo 129. *Glaucium corniculatum*

Photo 130. *Papaver arenarium*

Photo 131. *Papaver commutatum*

Photo 132. *Papaver roseolum*

Photo 133. *Roemeria refracta*

Photo 134. *Acantholimon glumaceum*

Photo 135. *Limonium meyeri*

Poaceae

Agropyron imbricatum (M. Bieb.) Roem. & Schult.

Agropyron imbricatum is a perennial herbaceous plant with stems 25-40 cm in heght (Photo 136). Leaf blades 2-3 mm wide, spikes are cylindrical, not pectinate, 2.5-9 cm long. Spikelets 7-12 mm long, (3)5-7-flowered, pale-green; flowers imbricate incumbent. Blooming is observed in June.

The species is distributed in the Caucasus, Central, South and South-East Europe, North, West and Middle Asia. In Armenia it is distributed in Shirak, Aparan, Sevan, Darelegis, Zangezur floristic regions, in meadows, in stony meadow-steppes, in woodlands, in phrygana, in the lower and middle mountain belts, at an altitude 900– 1500 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create a lawn, dried flowers on rocky hills and in bouquets. The species can be used in urban areas where irrigation water is limited to provide ground cover, weed control and to stabilize ditch banks, dikes, pipelines and roadsides. Xerophilous plant, an important positive feature is its resistance to low and high air and soil temperatures.

Cynosurus echinatus L.

Cynosurus echinatus is an annual plant 10-70 cm tall (Photo 137). Leaves linear, flat, 1.5-2.5 cm wide, rough to the touch. Panicle ovate, 10-60 mm long, spikelets 5-10 mm long. Scales of sterile florets with 7-20 mm long awns. Blooming is observed in May– June.

The species is distributed intheCaucasus, Mediterranean, South and EastEurope, Crimea, Anatolia, Iran, Iraq. In Armenia it is found in Lori, Ijevan, Darelegis, Zangezur, Meghri floristic regions, on dry stony slopes, pebbles, shibliak, sparse woodlands, oak-hornbeam forests, planetree grove, at an altitude 700–2300 mabove sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create a lawn, dried flowers on rocky hills and in bouquets, in natural landscape compositions, an ideal component of the Mauritanian lawn. It is resistant to trampling and stress, photophilous, but at the same time shade-tolerant. Grows until late autumn. Can grow well in any garden soil except very heavy. It is advisable to allocate a sandy loamy area to the plant and equip the drainage layer.

Erianthus ravennae (L.) P. Beauve.

Erianthus ravennae is a perennial plant 2-3 m tall, forming dense tufts (Photo 138). Stems erect, glabrous. Leaves to 50-145cm long. Panicles dense, 20-70 cm long, silver wool with a purple hue. Blooming is observed in May.

The species is native to the Caucasus, South Europe, Mediterranean, Middle, Central, South Asia, North Africa. In Armenia it occurs in Meghri floristic region, on sandy banks of rivers and canals, pebbles, riverine forests, roadsides, at an altitude 400–800 mabove sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in water basins, along the banks of ponds, when planting in groups

against the background of lawns or open spaces, as dried flowers in bouquets. It is widely introduced in lanscaping for its value as an ornamental species, grown for its large and impressive lilac fluffy panicles than appear at the top of 2-3 m tall clumps. Due to its height and vigorous growth, it is often used as a focal point or backdrop in garden designs. It is a popular choice for gardeners looking to create dynamic and visually appealing outdoor spaces. The plant loves the bright sun, undemanding to the soil, frost-resistant.

***Pennisetum orientale* Rich.**

Pennisetum orientale is a perennial herbaceous plant 15-80 (100) cm tall, densy tufted (Photo 139). Panicles spiciform, narrow-oblong, 5-10 (20) cm long. Spikelets 6-7 mm long, 2-flowered, in groups 1-4, surrounded by numerous silvery-pinnate or violet-scabrid bristles. Blooming is observed in May–June.

The species is distributed in the Caucasus, East Mediterranean, Anatolia, Iran, Iraq, Afghanistan, Pakistan, Middle Asia, North-East Africa. In Armenia it occurs in Shirak, Yerevan, Darelegis, Zangezur, Meghri floristic regions, ondry stony, loamy, sandy slopes, screes, phryganoids, tragacanths, shibliak, sparse woodlands, at an altitude 600–1700 mabove sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create rocky gardens, decorate hills and rocks, in mass plantings, well-suited for borders and mixed planting beds, in prairie type planting schemes. *Pennisetum orientale* thrives in full sun to partial shade and is adaptable to a range of soil types, including well-drained soils of varying fertility. It is drought-tolerant. The grass is well-suited for borders, rock gardens, and mixed planting beds, for adding texture, movement, and visual interest to garden designs. It can be used as a border plant, in mass plantings, or as a focal point in landscape designs. It has cultural significance in various regions where it is grown. Its appearance andmovement in the breeze have made it a favorite among gardeners and landscapers.

***Stipa arabica* Trin. et Rupr.**

Stipa arabica is a perennial herbaceous plant 40-80 cm tall, forming tufts (Photo 140). Basal leaves are 1/2 length of stems. The stems under the nodes are densely shortly pubescent. Leaf blade filiform, convolute, outer surface glabrous to densely pilose; ligule lanceolate, 5-10 mm long. Panicle contracted, 15-35 cm long, base enclosed by slightly inflated uppermost leaf sheath. Spikelets pale green or greenish yellow. Blooming is observed in May–July.

The species is native to the Caucasus, Mediterranean, South-West, Middle, Central Asia. In Armenia it is distributed in Shirak, Ijevan, Sevan, Yerevan, Darelegis, Zangezur, Meghri floristic regions, on dry stony loamy, cobble, gypsaceous slopes, sands, granodierits, semidesert, in steppe, hammada, phrygana, woodlands, at an altitude 700–2500 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create rocky gardens, decorate hills and rocks, suitable as dried flowers on rocky hills and in bouquets. Stipa arabica is known for its graceful and ornamental appearance. It is well-suited for xeriscaping and water-wise landscaping, as it can tolerate drought conditions once established. This grass prefers full sun and well-drained soils. It is

commonly used in ornamental gardens, landscaping, and naturalistic plantings. It can be used as an accent plant, in mass plantings, or as part of mixed perennial borders. Stipa arabica is a beautiful and adaptable grass species that can add elegance and movement to arid and xeric landscapes.

Primulaceae

Primula species has been cultivated since the end of the 16th century, but most of them were introduced in the 19th century. The genus name comes from the Greek primus ("early, first"). About 150 species are used in ornamental gardening. There are many species and forms grown both in open ground and in pot culture indoors. Primrose species suitable for outdoor cultivation are quite unpretentious.

Primula veris subsp. *macrocalyx* (Bunge) Lüdi

Primula veris subsp. *macrocalyx* is a perennial rhizomatous herbaceous plant 10-35 cm in height (Photo 141). Rhizomes short, branching. Flowers in loose, umbellate inflorescences, deviating to one side when flowering. The calyx is broadly bell-shaped, dilated, growing with fruits. Corolla yellow, at the base of the limb with orange spots. Blooming is observed in (March)April –June. It is pollinated by insects.

The species is native to the Caucasus, Crimea, Siberia, Anatolia, Iran, Middle Asia. In Armenia it is distributed in all floristic regions, in forests, along forest edges, on open slopes, at an altitude 500–2100 mabove sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for creating early spring flower beds, in mass plantings in the flower lawn, decorate hills and rocks, mixborders, potted indoor culture and for cutting. *Primula veris* subsp. *macrocalyx* is a moderately light-loving and moisture-loving species, winter hardy without cover. Propagated by seeds, division of the bush, less often by cuttings. Seeds quickly lose their germination capacity, so they are sown in the year of harvest on ridges in open ground. Plants are divided and transplanted once every 3-4 years, as the bushes grow rapidly. It should be grown in well-fertilized, loose, moisture-intensive, but well-drained, organic-rich soils, winter-hardy without shelter.

Ranunculaceae

Adonis aestivalis L.

Adonis aestivalis is an annual plant up to 50 cm in high (Photo 142). Basal leaves 3-5 cm, similar to cauline, petiolate, cauline leaves sessile or subsessile. Leaf blade 2-3-pinnatifid. Flowers 1.5-3.5 cm in diameter, sepals appressed to petals, broadly obovate. Petals 6-8, more or less erect, scarlet or bright red-purple, usually with dark purple basal blotch. Stamens about 30, anthers purple-black, pistils 30-40. Blooms in late May and June.

It is native to the Caucasus, Europe and Asia, but has been introduced elsewhere as an ornamental plant. In Armenia it is distributed in all floristic regions, in the steppes, on dry slopes and in crops.

Recommendations for use in the arid ornamental landscaping and gardening: good for borders, pots, rock gardens, to create a Mauritanian lawn. It grows well in ordinary garden soil, prefers a moist well-drained soil in sun or semi-shade. It is propagated by seeds. Seeds may germinate immediately after shedding or wait until the following spring. It can be pollinated by bees, flies, and beetles. *Adonis aestivalis*, for its bright scarlet flowers, has been introduced into cultivation, and in England it even has varieties with larger flowers.

***Adonis flammea* Jacq.**

Adonis flammea is an annual plant 25-40 cm in height (Photo 143). Stem is straight, simple or branched, furrowed, pubescent. Flowers 15-24 mm in diameter. Sepals pallid, glabrous or villose outside. Petals usually narrow oblong flame-scarlet, with a black spot at the base.

The native range of the species is the Caucasus, Europe, Mediterranean, Anatolia, Iran, Syria. In Armenia it is distributed in Ijevan, Yerevan, Meghri floristic regions, in the lower and middle mountain belts, on dry slopes and in crops.

Recommendations for use in the arid ornamental landscaping and gardening: to decorate hills and rocks, in mass plantings when creating early spring flower beds, to create a Mauritanian lawn. The plant prefers fresh to moist soil. It is propagated by seeds.

***Consolida orientalis* (J. Gay) Schröd.**

Consolida orientalis is an annual plant 30-70(100) cm in height (Photo 144). The leaves are ovate, pinnatisect and petiolate. Inflorescence isa dense long raceme. Flowers bright purple-violet. Blooming is observed in May–July.

The species is native to the Caucasus, Mediterranean, South Europe, Crimea, South-WestAsia, introduced in North America. In Armenia it is distributed inall floristic regions, except Upper Akhuryan and Gegham, in fields, among the crops, waste places, roadsides, at an altitude 700–1700 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for flowerbeds in gardens and parks, for planting in groups against the background of lawns or open spaces; in mass plantings when creating early spring flower beds; to create a Mauritanian lawn. Seed should be sown outside before the last frost of spring or in the autumn into a sunny area of the garden that has a rich organic soil. Once the seed is laid down it should be lightly covered. *Consolida* plants prefer full sun with well-drained soil. The species is popular in gardens for their showy spikes of flowers and are excellent for borders, wildflower meadows, and cutting gardens. Regular watering is needed, but they are relatively drought-tolerant once established. Given their height, they are often used in the back of borders or in cut flower gardens.

***Delphinium schmalhausenii* Albov**

Delphinium schmalhausenii is a perennial herbaceous plant 60-90(100) cm tall (Photo 144). The stem is slightly branched or simple. Leaves to the base are falsely palmately dissected into 5-7 lobes, in turn, deeply dissected. The flowers are blue, in a

simple or branched, dense, many-flowered raceme up to 30-33 cm long. Blooming is observed in June–July.

The species is native to the Caucasus, East and South European Russia, Anatolia, Iran, Lebanon-Syria. In Armenia it is distributed in all floristic regions except Aragats, in fields, shrubs, woodlands, margins of forests, at an altitude 700 – 1800 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for flowerbeds in gardens and parks, when planting in groups against the background of lawns or open spaces, to create a Mauritanian lawn. *Delphinium* flowers are often planted in mass or in groups, its planting is normally at the back of the bed, where flower spikes can reach 60-100 cm tall. Plant prefers a sunny area with neutral to slightly alkalinesoils. The substrate should be sandy loam, moist. The plants tolerate temperatures down to -18°C. Delphiniums may be propagated from seed or basal cuttings.

***Ranunculus trichophyllus* Chaix**

Ranunculus trichophyllus is a perennial aquatic plant, forming carpets on the surface of the water (Photo 145). Roots are fibrous, rhizome creeping. Stems slender to stout, prostrate or ascending, up to 1-(2) m long often rooting at the nodes. Leaves divided into many filiform segments. Flowers are solitary, 8-15 mm in diameter, petals 5, white with yellow base. Flowering is observed in June–July (August).

The native range of the species is the Caucasus, Europa, Anatolia, Iran, Afghanistan, West Asia, Siberia, Far East, North America, Australia, New Zealand. In Armenia it is distributed in Upper Akhuryan, Lori, Aparan, Gegham, Sevan, Yerevan, Darelegis, Zangezur floristic regions, in moderately fast flowing rivers, streams and lakes, still water bodies, from the lower to upper mountain belts.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in water basins, along the banks of ponds, in water gardens, as an oxygenator plant for ponds and water gardens.

The similar species *Ranunculus aquatilis* L. (White Water Crowfoot) already is in use as an attractive decorative aquatic plant for ponds and water gardens.

***Thalictrum minus* L.**

Thalictrum minus is a perennial herbaceous plant 40-120 (150) cm tall with small 3- to 4-pinnate leaves with three or more rounded lobes (Photo 146). Leaves are spreading at right angles. Flowers are in loose panicle. The tiny flowers borne on thin stems are green, yellow or purple-tinted. Blooming is observed in June – July.

The native range of the species is the Caucasus, Eurasia, North-West Africa. Very common in all floristic regions of Armenia, in shrubs, margins of forests, meadows, in the low, middle and subalpine belts, at an altitude 700–2850 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in groups against the background of lawns or open spaces, in cottage and informal gardens, wildflower meadows, in flower borders, for Mauritanian lawn. It is propagated by seed or by division. Grow satisfactorily on moist soil rich in humus, both in a sunny place and in partial shade.

Rosaceae

Agrimonia eupatoria L.

Agrimonia eupatoria is a perennial herbaceous plant 20-50 (80) cm in height, with thick rhizome (photo 147). Stems solitary, erect, simple, or branching above, pubescent. Leaves are cauline, lowest ones are reduced to scales, the rest petiolate, intermittently pinnate. Leaflets ovate-rhombic, large-toothed, pubescent, below whitish. Inflorescence is a simple spike, loose in lower part and dense above, 10-30 cm long. Flowers are in axils of small bracts. Sepals are 2 mm long, acute. Petals are 4-6×2-3 mm, ovate lanceolate, yellow. Flowering time is June-August.

The species is native to the Caucasus, Europe and Southwestern Asia. In Armenia it is distributed in all floristic regions, from the lower to the middle mountain belt, in shrubs, on the edges of fields, along roads, in meadows, edges.

Recommendations for use in the arid ornamental landscaping and gardening: in gardens, in borders and mixborders, in lawns on slopes. It grows in moderately fertile, well-drained soil in full sun or partial shade. Propagated by seeds or by division in spring or autumn.

Potentilla recta L.

Potentilla recta is a perennial herbaceous, rhizomatous plant, 20-50 cm in height, pubescent with stiff long protruding hairs (Photo 148). The stems are thick, straight, leafy, branched in the upper part. Leafy, hairy multi-branched stem. The lower leaves with 5 to 9 narrow, coarsely toothed leaflets, upper leaves smaller, have 3-5 leaflets, short petioles or sessile. The flowers are large, up to 2.5 cm in diameter. The petals are heart-shaped, yellow. Blossoms in May - July.

It is native to the Caucasus, Europe, temperate Asia, Africa. In Armenia it is distributed in all floristic regions, on dry slopes, in shrubs, forest edges, from the lower to the upper mountain belts.

Recommendations for use in the arid ornamental landscaping and gardening: to decorate a border, alpine slides or hedges. It is better to propagate by seeds. Seeds are best sown immediately in open ground in the autumn. The vegetative method of reproduction is also acceptable: by dividing the bush and layering. The soil should be well-drained, loose, slightly acidic and nutritious, with little lime content. Abundant watering is necessary only in the first month after planting, then it must be reduced to once every two weeks.

Photo 136. *Agropyron imbricatum*

Photo 137. *Cynosurus echinatum*

Photo 138. *Erianthus ravennae*

Photo 139. *Pennisetum orientale*

Photo 140. *Stipa arabica*

Photo 141. *Primula veris* subsp. *macrocalyx*

Photo 142. *Adonis aestivalis*

Photo 143. *Adonis flammeus*

Photo 144. *Consolida orientalis*

Photo 145. *Ranunculus trichophyllus*

Photo 146. *Thalictrum minus*

Photo 147. *Agrimonia eupatoria*

Photo 148. *Potentilla recta*

Rubiaceae

Asperula glomerata (M. Bieb.) Griseb.

Asperula glomerata is a perennial herbaceous plant. Stems densely hirsute with spreading long hairs, 10-25cm long. Leaves in whorls of 4-6, shorter then 3cm. Flower fascicles sessile. Leaves 8-10(15) mm long. Blooming is observed May–July.

The species is native to the Caucasus, Anatolia, Iran. In Armenia it is distributed in all floristic regions, on dry stony slopes, at an altitude 800–2500 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for the rock garden and flower border, for carpet flowerbeds and rocky hills decoration. The word Asperula, arise from asper, rough, refers to the leaves. They tend to be suitable for open sunny positions or partial shade. Plants thrive in a well-drained soil and may be planted in early fall or spring. The best method of propagation is to separate the plants in spring or autumn and replant the rooted pieces or propagate by stem cuttings. Seed should be sown in sandy soil in autumn or early spring. Germination time is three to seven weeks. It spreads rapidly, soon covering a good deal of ground.

Galium humifusum M. Bieb.

Galium humifusum is a perennial herbaceous plant. Stems decumbent, up to 1m long, densely pubescent, seldom glabrous. Flowers in dense inflorescences nearly from the base of stem. Blooming is observed in May–July.

The species is native to the Caucasus, East and South-East Europe, West, Central Asia. In Armenia it is distributed in all floristic regions except Upper Akhuryan and Aragats, in semideserts, open woodlands, weed habitats, at an altitude 500–1700 mabove sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds in gardens and parks, to decorate hills and rocks, for carpet flowerbeds decoration, look great within borders or used as groundcover in cottage and wildlife gardens. *Galium* are best planted in an area of part shade, in moist, well-drained soil of clay, sand and loam within an acidic, alkaline or neutral PH balance. They are quick to form a thick carpet of groundcover, spreading with ease. It is possible to propagate by division or by seed in autumn or during the early spring time.

Rubia tinctoria L.

Rubia tinctoria is a perennial plant with a main root, from which thick rhizomes with reddish-brown bark extend. The stems are thin, climbing, strongly branching, quadrangular with spines. The leaves are dense, light green, lanceolate or elliptical, 4-10 × 0.5-3.5 cm, in whorls of 2-4 (6). The flowers are small, star-shaped, yellow, in apical and axillary cymes. The fruits are juicy black drupes. The plant blooms from June to August.

The native range of the species is the Caucasus, South-East Europe, West and Middle Asia. In Armenia it is distributed in Yerevan, Darelegis, Meghri floristic regions, among the shrubs, on rocky slopes.

Recommendations for use in the arid ornamental landscaping and gardening: is cultivated into flower beds, in vertical gardening, on hedges, for decorating the walls. Prefers a light sandy soil in full sun. It is easily grown from cuttings or stolons. This plant was at one time widely cultivated for the red dye obtained from its roots. Plants grown in fertile well-limed soils produce more pigment in the root.

Saxifragaceae

Saxifraga cymbalaria L.

Saxifraga cymbalaria is an annual plant 5-25 cm in height. Leaves in a loose basal rosette, orbicular to reniform, l-2cm across, somewhat fleshy, bright green, with seven to nine lobe-like teeth. Stems weak, recumbent or ascending, 10-50 cm long. Flowers are collected in a loose corymbose inflorescence. Petals are yellow, 4.5-6 mm long, 2 or more times longer than the calyx. Blooming is observed June–August.

The spesies is native to the Caucasus, East Europe, Mediterannean, South Africa, Anatolia, Iran, Syria.In Armenia it is distributed in Upper Akhuryan, Lori, Ijevan, Aparan, Sevan, Gegham, Yerevan, Darelegis, Zangezur, Meghri floristic regions, on wet rocks, by the water, at an altitude 800–3000 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create rock and alpine gardens, decorate hills, for carpet beds and hills decoration. in containers, stone walls, and as ground cover or bed edging in free-draining locations. It is propagated from seeds or offsets.

Numerous species and cultivars of *Saxifraga* are cultivated as ornamental garden plants, valued particularly as ground cover or as cusion plants in rockery and alpine gardens. Many require alkaline or neutral soil to thrive. The method to propagate saxifrage is to divide from a mature plant, right from the stems, then replant into a propagation bed. Clumps will root best in sandy, chalky soil that drains well. Sowing is best done in late autumn, or winter since the seed needs to go through a cold spell to germinate.

Scrophulariaceae

Dodartia orientalis L.

Dodartia orientalis is a perennial herbaceous root-sprouting plant 15-50 cm tall, with numerous divaricate branches, foliose stems and terminal panicles sparsely flowered (Photo 149). Leaves 5-35 mm long, oblong. Calyx is bell-shaped, 5-dentate. Corolla dark-violet or dark-purple, 1.5-2.5 mm long, with long tube, bilabiate. Blooming is observed in May–June.

The native range of this species is the Caucasus, East Europe to Mongolia and Afghanistan. In Armenia it is found in Yerevan, Darelegis, Zangezur, Meghri floristic regions, on dry stony, loamy slopes, along the canals, saline places, at an altitude 700–1300 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: in plantings in saline and loamy areas, for rock and scree gardens. Plant is not exacting to the soil, with standing drought, frost-resistant.

Verbascum thapsus L.

Verbascum thapsus is a perennial herbaceous densely woolly plant. Stem 30-150 cm in height, erect. Inflorescence is very dense terminal spikelike raceme, sometimes branched. Corolla is yellow, 12-20 mm in diameter. Blooming is observed in June–August.

The species is native to the Caucasus, temperate Eurasia. In Armenia it is distributed in Upper Akhuryan, Lori, Ijevan, Sevan, Meghri floristic regions, in forest edges, sands, riverbanks, roadsides, at an altitude 500–1700 mabove sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in small groups against the background of lawns or open spaces, combine well with other summer perennials and grasses in traditional cottage gardens and in contemporary plantings. With distinctive, upright spires of flowers, *Verbascum thapsus* plants add height and structure to a planting scheme. Verbascums originate well in areas where the conditions are sunny or in partial shade, as long as the conditions are dry and soil is well-drained. *Verbascum thapsus* will self-seed, another method of propagation is to take root cuttings in autumn. *Verbascum* garden cultivars are known, flowering in a range of colours from white to yellow, orange, blue and purple.

Veronica orientalis Mill.

Veronica orientalis is a perennial herbaceous plant 10-30 cm tall (Photo 150). The stems are short and curly-pubescent, rarely almost bare, graceful, arcuately ascending. The rhizome is long, woody. Leaves sessile, entire, short. The lower leaves are oblong or lanceolate in shape, the base is wedge-shaped, the edges are incised-toothed, sometimes entire, bright green. The flowers are collected in loose, short inflorescences. The pedicels are longer than the calyx. The calyx consists of 4-5 unequal length linear-lanceolate, obtuse lobes. Corolla is reddish, pale blue or blue, larger than the calyx. Blooming is observed in May – July.

The native range of the species is the Caucasus, South-WestAsia.InArmeniait is distributed in all floristic regions, onstony and scree slopes, pastures, in forests, at an altitude 600 –3500 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds in gardens and parks, for the scree gardens, to create rocky gardens, decorate hills and rocks. *Veronica orientalis* was cultivated sice 1759, it was described by Miller (1768) likely based on material cultivated in botanical gardens. Moderately fertile, well drained soil and a sunny site are basic requirements. It is propagated by division in autumn or early spring, seed in spring, or cuttings taken in late spring or late summer. Good germination after autumnal cold stratification treatment.

Veronica peduncularis M. Bieb.

Veronica peduncularis is a perennial herbaceous plant. Leaves 15-20 mm in length, dentate. Flowers are white. Pedicels at 2-2.5 time longer than calyx and bracts, horizontally spreading. Blooming is observed in May–July.

The species is native to the Caucasus, North Anatolia. In Armenia occurs in Ijevan and Sevan floristic regions inforests, pebbles, subalpine juniper stands, at an altitude 1000–2500 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create rocky gardens, decorate hills and rocks, for carpet beds and rocky hills decoration, for the edge of a mixed herbaceous border, to create a Mauritanian lawn. It can grow well in full sunshine and is also slightly tolerant to a semi-shade environment. It prefers a warm growth environment, and is relatively cold-resistant. *Veronica peduncularis* can propagate through methods like division propagation, sowing and cuttage. The best time for division is in the mid-spring. While division is carried out, a 2- to 3-year-old plant should be chosen. Cuttage propagation takes place in late spring or summer. *Veronica peduncularis* cv. 'Georgia Blue' forms beautiful mats of purple-tinged leaves. *Veronica* representatives are in culture since the end of the 16th century. More than 50 species are used in ornamental gardening.

Thyphaceae

Thypha latifolia L.

Thypha latifolia is a large perennial rhizomatous plant, often it forms dense clumps (151). Rhizome is thick, about 2.5 cm in diameter, up to 60 cm long, creeping. Stem 1-2 m tall, cylindrical. Leaves are up to 2 cm wide, grayish-green, entire, linear. The flowers are unisexual, very small, with a perianth of fine hairs. The inflorescence is a cylindrical spike, consisting of two parts. The apical part is staminate; located below – pistillate, velvety thickened, from dark brown to black-brown. Blooming is observed in July–August.

It is found as a native plant species in the Caucasus, Eurasia, Africa, North and South America. InArmeniait occurs in Lori, Aparagats, Sevan, Yerevan, Darelegis, Zangezur, Meghri floristic regions, on banks of rivers and lakes, flood-lands, on swamps, at an altitude700–2100 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in water garden, water basins, along the banks of ponds. From the inflorescences make up dry bouquets. For optimal results, should grow them in full sunlight to partial shade all year round. It can be propagated by seed collected in the fall and by dividing the stout rhizomes in the spring. The seeds need cold stratification in the winter to germinate in the spring.

Valerianaceae

Valeriana leucophaea DC.

Valeriana leucophaea is a perennial herbaceous erect plant 35-40 cm tall (Photo 152). Basal and 2 pairs of stem leaves lanced or ovate-lanced, 5-10 cm long, simple or with 1-2 pairs of linear lobes, with long petioles, other leaves stalkless, deeply pinnately lobed into linear or thread-like segments. Inflorescence head-like,

dense, 2 cm across. Flowers are tubular, pale pink. Tuber is oblong or ovate. Blooming is observed in May–June.

The species is distributed in the Caucasus, Anatolia, Iran. In Armenia it is found in all floristic regions, except Zangezur and Meghri, in grassy, rocky, stony slopes, meadows and open forests, at an altitude 1000–3200 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: suitable for flowerbeds in gardens, for planting in small groups against the background of lawns or open spaces, for mix borders, for cutting. It is also used to stabilize soil and prevent erosion. It can be propagated from seed or division. Seeds should be sown in a well-drained soil mix and kept moist until germination. Divisions should be taken from mature plants and planted in a well-drained soil mix.

***Valeriana officinalis* L.**

Valeriana officinalis is a perennial rhizomatous herb 40-150 cm high (Photo 153). Rhizome is short, root system fibrous type with thin cord-like roots. Leaves are pinnate with 3-9 pairs of lobules, lower ones sometimes entire. Teeth of the calyx during fruit grow into a tuft consisting of feathery hairs. Flowers are small with two bracts, corolla unilaterally swollen at the base, with an irregular limb, stamens 3. Fruit is unilocular. Blooming is observed in June-August.

The species is distributed in the Caucasus, Europe, Mediterranean, Siberia, Asia. In Armenia it occurs in Lori, Ijevan, Aragats, Aparan, Sevan, Yerevan, Darelegis, Zangezur floristic regions, in forests, bushes, meadows, river banks, rocks, at an altitude of 600–2200 m above sea level.

Recommendations for use in the arid ornamental landsgaping and gardening: suitable for flowerbeds in gardens and parks, in a cottage garden, an informal border or wild garden. It is propagated by seed, division, or cuttings, it will also self seed. Valerian is hardy and can be planted in autumn or spring. Once established, it needs little care.

Violaceae

The first records describing the use of violets *Viola* in Europe are from Ancient Greece, fragrant violets were sold in theAthenian agora and praised by Greek poets. They continued to be used throughout the MiddleAges. Highly ornamental herbaceous plants, perennial, rarely biennial or annual, forming compact bushes with charming, sometimes fragrant, zygomorphic flowers. Annuals or biennials are grown in small or large groups, as well as in arrays on lawns and in the foreground of a flower border, as a border in flower beds, on borders or along paths. Perennial wild species are used mainly as ground cover plants, including near shrubs and under cover of deciduous trees with transparent crowns, on rocky hills, for planting in pots, containers and vases. Often used for cutting. In general, violets are not demanding in terms of fertility, they grow well in ordinary garden soils, preferably light, loose and well-drained. Hardy without shelter or some species and varieties require light shelter for the winter. Pollination is entomophilous or cleistogamy. Plants propagated by dividing the bush, cuttings and seeds. Bushes are recommended to be divided at least once every three years, immediately after flowering. Green cuttings can be taken

throughout the summer, preferably from non-flowering strong shoots that root easily in wet sand or light substrate in a few weeks.

Viola alba Besser

Viola alba is a perennial plant with ascending rhizome and rosettes of leaves (Photo 154). Leaves are up to 20 cm, triangular-cordate, at base with deep cordate sinus. Corolla is white or lilac, capsule pubescent. Blooming is observed in April–May.

The species is distributed in the Caucasus, Europe, Anatolia, Iran**.** In Armenia it is found in Ijevan, Gegham, Yerevan, Darelegis, Zangezur, Meghri floristic regions, in the shade of rocks, on shaded slopes, in gardens at an altitude of 700–1500(2200) m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for beds and borders, cottage and rocky gardens, for carpet beds and shaded rocky hills decoration, in mass plantings when creating early spring flower beds, for cutting, popular in indoor floriculture. It is propagated by division. Plants should be grown in moist but well-drained soil in sun or light shade.

Viola ambiqua Waldst. & Kit.

Viola ambiqua is perennial pubescent plant (Photo 155). Leaf blades are triangular- or oblong ovate, at base shallow or cuneate-cordate. Corolla is violet, peduncles 3-10 cm long. Blooming is observed in April–May.

The native range of the species is the Caucasus, from Europe to Central Asia. In Armenia it is found in Lori, Ijevan, Aparan, Sevan, Yerevan, Darelegis floristic regions, on grassy slopes, shrubs, forest edges, at an altitude 800–1800 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create rocky gardens, decorate hills, for carpet beds decoration, in mass plantings when creating early spring flower beds, for cottage gardens. It prefers a sunny site with rich, well-drained soil, propagated by seeds or division after flowering or in autumn.

Viola canina L.

Viola canina is a perennial herbaceous plant 10-25 cm tall (Photo 156). Leaves are oblong, heart-shaped at the base. Flowers are small, 15-18 mm, sepals 5, petals 5. Corolla is light blue with white spot in the center. Stipules are narrowly triangular, dentate. Capsules are tricuspid, ovules numerous. Blooming is observed in May.

The species is native to the Caucasus, Europe, North-East Anatolia. In Armenia it is distributed in Lori, Ijevan, Sevan, Zangezur, Meghri floristic regions, in themiddle and upper mountain belts, forests, shrubs, along forest edges, upland steppes, at an altitude of 1700–2600 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in heavily shaded areas, decorate rocks and hills. It prefers a cool moist well-drained humus-rich soil in partial or dappled shade and protection from

scorching winds. Propagated by seeds, sowing is best done in the fall, or by division in the fall or immediately after flowering.

Viola kitaibeliana Schult.

Viola kitaibeliana is an annual, greyish, densely hirsute plant 3-10 (15) cm in height (Photo 157). Basal leaf blades are oblong, upper ones (linear-) lanceolate. Corolla is creamy-white, with yellow spot and purplish highlights. Blooming is observed in March-June.

The species is native to the Caucasus, Europe, West Asia. In Armenia it is distributed in Ijevan, Sevan, Yerevan, Zangezur, Meghri floristic regions, inphryganoid vegetation, mountain steppe, shibliak, forests, open light forests, rocks, stony slopes, at an altitude 500–1700(2000) m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: to create rock gardens, decorate hills, for carpet beds, in mass plantings when creating early spring flower beds. It is propagated by seeds.

Viola occulta Lehm.

Viola occulta is an annual herbaceous plant (Photo 158). Stems erect, 2.5-25 cm. Leaves narrowly oblong-spatulate, distantly toothed, glabrous to rarely stiffly hairy. Stipules are deeply divided. Sepals broadly lanceolate, 7-13 mm. Corolla white to cream, 6 - 8 mm, sometimes petals with bluish edges. Blooming is observed in April–May.

The native range of the species is the Caucasus, Crimea to West and Central Asia.In Armenia it is distributed in Upper Akhuryan, Shirak, Ijevan, Aparan, Sevan, Yerevan, Darelegis, Zangezur, Meghri floristic regions, on dry stony and cobble slopes, sands, red clays, in phryganoid vegetation, tragacanth formations, open light forests, at an altitude 600–2400(2800) m above sea level.

Recommendations for use in the arid ornamental gardening and landscaping: to create rock gardens, decorate hills, for carpet beds, in mass plantings when creating early spring flower beds. It is propagated by seeds.

Viola odorata L.

Viola odorata is a perennial herbaceous plant 10-15 cm tall, with long, thin, above-ground stolons (Photo 159). Leaves with stipules, alternate, rounded-cordate, fine-haired. Corolla is dark violet with all petals of same width. Peduncles 5-12 cm.. Capsules are tricuspid densely pubescent. Ovules are numerous. Blooming is observed in March–April, the flowers are scented.

The species occurs in the Caucasus, Europe, West Asia. In Armenia it is found in all floristic regions, except Upper-Akhuryan and Shirak, in shrubs, gardens, forests, along the edges, at an altitude of 700–2700 m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: for planting in heavily shaded areas, rocks and hills. It is widely cultivated as ornamental plant. The fragrant violet *Viola odorata* was the most famous species for a long time. The peak of its popularity came at the beginning of the 19th century, when

decorative forms with blue, pink and white flowers, including double ones, were widely cultivated. Varieties of fragrant violet with very large single flowers were produced between 1860 and 1865. Currently, more than 60 highly decorative varieties of this species alone are known.

Viola suavis M. Bieb.

Viola suavis is a perennial herbaceous plant 5-10 cm tall with thick creeping shoots, often underground (Photo 160). The leaves are oval-heart-shaped. Stipules narrowly lanceolate, (glandular) fringed. The corolla is blue, white in the center. Flowering is observed in April.

The species is native to the Caucasus, Europe, West Siberia, Anatolia, Iran, Middle Asia. In Armenia it is distributed in Ijevan, Aparan, Sevan, Yerevan, Zangezur, Meghri floristic regions, in forests, bushes, on grassy slopes, at an altitude 500–1500(2100) m above sea level.

Recommendations for use in the arid ornamental landscaping and gardening: in lawns, rock gardens, edging, and borders, as a groundcover along walls and path edges. It is grown in a low-humus, semi-shady place, on drained soil. Reproduction by seeds, division is carried out after flowering and in autumn.

Photo 149. *Dodartia orientalis*

Photo 150. *Veronica orientalis*

Photo 151. *Thypha latifolia*

Photo 152. *Valeriana leucophaea*

Photo 153. *Valeriana officinalis*

Photo 154. *Viola alba*

Photo 155. *Viola ambiqua*

Photo 156. *Viola canina*

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Photo 157. *Viola kitaibeliana*

Photo 158. *Viola occulta*

Photo 159. *Viola odorata*

Photo 160. *Viola suavis*

Supplement

Representatives of Armenian flora with potential ornamental value and ornamentals adopted in the general practice of horticulture and landscaping

The list shows with asterisks (✽) the species periodically cultivated in the living collection "Flora and Vegetation of Armenia" of the Yerevan Botanical Garden NAS RA during the period since 1938 to the present

Armenian ornamental flora representatives	Some ornamentals adopted in in the practice of horticulture and landscaping
Acanthaceae *Acanthus dioscoridis* L. ✽	**Acanthaceae** *Acanthus caroli-aleksandri* Hausskn *Acanthus dioscoridis* L. *Acanthus dioscoridis* L. var. *perringii* (Siehe) E. Hossain *Acanthus mollis* L. *Acanthus spinosus* L.
Alliaceae *Allium akaka* S. G. Gmelex Schult. & Schult. f. ✽ *Allium albidum* Fisch. ex M. Bieb. *Allium atroviolaceum* Boiss. ✽ *Allium cardiostemon* Fisch. et C. A. Mey. ✽ *Allium flavum* L. *Allium karsianum* Fom. *Allium materculae* Bordz. ✽ *Allium paradoxum* (M. Bieb.) G. Don ✽ *Allium pseudoampeloprasum* Miscz. ex Grossh. *Allium pseudoflavum* Vved. *Allium rubellum* M. Bieb. ✽ *Allium saxatile* M. Bieb. *Allium scabriscapum* Boiss. & Kotschy ✽ *Allium szovitsii* Regel *Allium victorialis* L. ✽ *Allium vineale* L. ✽ *Allium woronowii* Miscz. ex Grossh. *Nectaroscordum tripedale* (Trautv.} Grossh. ✽	**Alliaceae** *Allium albidum* Fisch. ex M. Bieb. *Allium atroviolaceum* Boiss. *Allium cardiostemon* Fisch. et C. A. Mey. *Allium caeruleum* Pall. *Allium cyathophorum* var. *farreri* (Stearn) Stearn hort. "Farreri" *Allium flavum* L. *Allium flavum* L. 'Fireworks Yellow' *Allium fragrans* Vent. *Allium fistulosum* L. hort. "Subsport" *Allium hollandicum* R. M. Fritsch '*Purple Sensation*' *Allium macleanii* Baker 'His Excellency' *Allium narcissiflorum* Will. *Allium neapolitanum* Cirillo hort. "Grandiflorum" *Allium paradoxum* (M. Bieb.) G. Don var. *normale* Stearn *Allium pseudoampeloprasum* Miscz. ex Grossh. 'Garni' *Allium roseum* L. *Allium ursinum* L. *Allium victorialis* 'Cantabrica' *Allium vineale* L. 'Hair' *Allium woronowii* Miscz. ex Grossh. 'Vardaovit' *Allium zebdanense* Boiss. et Noe

	Nectaroscordum siculum (Ucria) Lindl. *Nectaroscordum tripedale* (Trautv.} Grossh.
Amaranthaceae *Amaranthus cruentus* L.	**Amaranthaceae** *Amaranthus caudatus* L. *Amaranthus cruentus* L. 'Hopi red Dye' *Amaranthus hypochondriacus* L. *Amaranthus tricolor* L.
Amaryllidaceae *Galanthus alpinus* Sosn. ✽ *Galanthus transcaucasicus* Fomin ✽ *Galanthus artjuschenkoae* Gabrielian *Sternbergia colchiciflora* Waldst. et Kit. ✽ *Sternbergia fischeriana* (Herb.) M. Roem. ✽ *Narcissus poeticus* L. cult., naturalized	**Amaryllidaceae** *Galanthus alpinus* Sosn. *Galanthus elwesii* Hook f. *Galanthus elwesii* Hook 'Comet' *Galanthus nivalis* L. hort. *Galanthus nivalis* f. *pleniflorus* 'Flore Pleno' *Galanthus plicatus* M. Bieb. *Sternbergia candida* B. Mathew & T. Baytop *Sternbergia colchiciflora* Waldst. et Kit. *Sternbergia fischeriana* M. Roem. *Sternbergia vernalis* (Miller) Gorer & J.H. Harvey *Narcissus poeticus* L. *Narcissus poeticus* L. var. *recurves* *Narcissus poeticus* L.× *N. pseudonarcissus* L. 'Actaea' *Narcissus pseudonarcissus* L. *Narcissus tazetta* L.
Apiaceae *Actinolema macrolema* Boiss. ✽ *Angelica tatianae* Bordz. ✽ *Anthriscus nemorosa* (M. Bieb.) Spreng. ✽ *Astrantia maxima* Pall. ✽ *Astrodaucus orientalis* (L.) Drude ✽ *Bupleurum rotundifolium* L. ✽ *Eryngium billardieri* F. Delaroche ✽ *Ferula orientalis* L. ✽ *Ferula szovitsiana* DC. ✽ *Heracleum antasiaticum* Mand. ✽ *Hippomarathrum microcarpum* (M. Bieb.) B. Fedtsch. *Lisaea papyracea* Boiss. *Peucedanum ruthenicum* M. Bieb. ✽ *Pimpinella aurea* DC. ✽ *Prangos ferulacea* Lindl. ✽ *Seseli libanotis* (L.) W.D.J.K.Koch	**Apiaceae** *Angelica sylvestris* L. 'Vicar's Mead' *Anthriscus sylvestris* (L.) Hoffm. 'Ravenswing' *Astrantia maxima* Pall. *Astrantia major* L. *Astrantia major* L. 'Alba' *Astrantia major* L. 'Roma' *Astrantia trifida* Hoffm. *Astrantia* 'Buckland' *Astrodaucus persicus* (Boiss.) Drude *Bupleurum falcatum* L. *Bupleurum fruticosum* L. *Bupleurum rotundifolium* L. *Daucus carota* L. 'Dara' *Ferula communis* L. *Heracleum mantegazzianum* Sommier & Levier *Heracleum persicum* Desf.ex Fisch.,

Smyrniopsis armena Schischk. ✽ *Stenotaenia macrocarpa* subsp. *daralaghezica* (Takht.) Takht. *Xanthogalum purpurascens* Avé-Lall.	C.A. Mey. & Avé-Lall. *Peucedanum verticillare* (L.) W.D.J. Koch ex DC. *Pimpinella anisum* L. *Pimpinella rhodantha* Boiss. *Prangos ferulacea* Lindl. *Seseli gummiferum* Pall. ex Sm.
Apocinaceae *Vinca herbacea* Waldst. et Kit. ✽	**Apocinaceae** *Vinca herbacea* Waldst. et Kit. *Vinca minor* L. *Vinca rosea* L. *Vinca* cv. 'Mediterranean' *Vinca* cv. 'Santa Fe' *Vinca* cv. 'Tropicana' *Vinca* cv. 'Victory'
Acoraceae *Acorus calamus* L. ✽	**Acoraceae** *Acorus calamus* L. *Acorus calamus* cv. 'Variegatus' *Acorus gramineus* Aiton *Acorus gramineus* Aiton cv. 'Ogon' *Acorus gramineus* cv. 'Licorice'
Araceae *Arum elongatum* Steven ✽	**Araceae** *Arum italicum* Mill. subsp. *canariense* (Webb & Berthel.) P.C. Boyce *Arum italicum* Mill. subsp. *albispathum* (Steven ex Ledeb.) Prime *Arum italicum* Mill. subsp. *italicum* *Arum italicum* Mill. subsp. *neglectum* (F. Towns.) Prime
Asparagaceae *Asparagus officinalis* L. ✽ *Asparagus persicus* Baker *Asparagus verticillatus* L. ✽	**Asparagaceae** *Asparagus aethiopicus* L. *Asparagus asparagoides* (L.) Druce *Asparagus densiflorus* (Kunth) Jessop *Asparagus densiflorus* (Kunth) Jessop cv. 'Myersii' *Asparagus falcatus* L. *Asparagus officinalis* L. *Asparagus setaceus* (Kunth) Jessop *Asparagus* cv. ‘Cwebe’ *Asparagus* cv. ‘Meyers’

Asphodelaceae *Asphodeline lutea* Rchb. ✽ *Asphodeline taurica* (Pall.) Kunth. ✽ *Eremurus spectabilis* M. Bieb. ✽	**Asphodelaceae** *Asphodeline lutea* Rchb. *Asphodeline liburnica* (Scop.) Rchb. *Asphodeline taurica* (Pall.) Kunth. *Eremurus* × *isabellinus* P. Vilm. (*E. olgae* × *E. stenophyllus*) cv. 'Cleopatra' *Eremurus himalaicus* Baker *Eremurus robustus* (Regel) Regel *Eremurus spectabilis* M. Bieb. *Eremurus stenophyllus* (Boiss. & Buhse) Baker *Eremurus* cv. 'Joanna'
Aspleniaceae *Asplenium adiantum-nigrum* L. ✽ *Asplenium ruta-muraria* L. ✽ *Asplenium scolopendrium* L. *Asplenium trichomanes* L. *Athyrium filix-femina* (L.) Roth ✽ *Ceterach officinarum* DC. ✽	**Aspleniaceae** *Asplenium adiantum-nigrum* L. *Asplenium* × *ebenoides* R.R. Scott. *Asplenium ruta-muraria* L. *Asplenium ruta-muravia* L. var. *lanceolatum* Christ *Asplenium scolopendricum* L. *Asplenium scolopendricum* L. cv. ‘Angustifolia’ *Asplenium trichomanes* L. *Athyrium filix-femina* (L.) Roth subsp. *angustum* f. *rubellum* ‘Lady in Red’ *Athyrium filix-femina* (L.) Roth var. *asplenioides* (Michx.) Farw. *Athyrium filix-femina* (L.) Roth cv. 'Acrocladon' *Athyrium filix-femina* (L.) Roth cv. 'Cristato-polydactylum' Messrs. *Athyrium filix-femina* (L.) Roth cv. 'Flexuosum' J. Huddart. *Athyrium filix-femina* (L.) Roth cv. 'Orbiculatum' Elworthy *Athyrium filix-femina* (L.) Roth cv. 'Victoriae' James Cosh *Ceterach officinarum* DC.
Asteraceae *Achillea filipendulina* Lam. ✽ *Achillea millefolium* L. *Achillea tenuifolia* Lam. ✽ *Achillea vermicularis* Trin. ✽ *Aetheopappus pulcherrimus* (Willd.) Cass. ✽ *Amberboa moschata* (L.) DC. ✽ *Anthemis cretica* L. *Anthemis melanoloma* Trautv. *Anthemis tinctoria* L. ✽ *Anthemis triumfettii* (L.) All. *Artemisia absinthium* L. ✽	**Asteraceae** *Achillea filipendulina* Lam. hort. *Achillea millefolium* L. *Aetheopappus pulcherrimus* (Willd.) Cass. *Amberboa moschata* (L.) DC. *Amberboa moschata* (L.) DC. cv. 'Imperialis Graciosa' *Amberboa moschata* (L.) DC. cv. 'The Bride' *Anthemis subtinctoria* Doborcz. *Anthemis tinctoria* L.

Artemisia splendens Willd. ✽ *Aster alpinus* L. ✽ *Aster amellus* ssp. *ibericus* (M. Bieb.) V. Avet. ✽ *Centaurea behen* L. ✽ *Centaurea cheiranthifolia* Willd. *Centarea depressa* M. Bieb. ✽ *Centaurea erivanensis* (Lipsky) Bordz. ✽ *Centaurea iberica* Trev. ex Spreng. ✽ *Doronicum macrophyllum* Fisch. ✽ *Doronicum oblongifolium* DC. *Echinops orientalis* Trautv. ✽ *Echinops pungens* Trautv. ✽ *Echinops sphaerocephalus* L. *Erigeron acer* L. ✽ *Erigeron caucasicus* Steven ✽ *Grossheimia macrocephala* (Muss.-Puschk. ex Willd.) Sosn. et Takht. *Gundelia tournefortii* L. *Helichrysum armenium* DC. ssp. *armenium* ✽ *Helichrysum armenium* DC. ssp. *araxinum* (Takht. ex Kirp.) Takht. ✽ *Helichrysum graveolens* (M. Bieb.) Sweet ✽ *Helichrysum pallasii* (Spreng) Ledeb. *Helichrysum plinthocalyx* *Helicrysum rubicundum* (K. Koch) Bornm. ✽ *Hieracium bifurcum* M. Bieb. *Hieracium cincinnatum* Fries ✽ *Hieracium cymosum* L. ✽ *Hieracium pilosella* L. ✽ *Inula aucheriana* DC. *Inula auriculata* Boiss. et Bal. ✽ *Inula britannica* L. ✽ *Inula helenium* L. ✽ *Inula mariae* Bordz. *Inula oculus-cristi* L. *Inula orientalis* Lam. *Lactuca tatarica* (DC.) C. A. Mey. ✽ *Leucanthemum vulgare* Lam. ✽ *Ligularia sibirica* (L.) Cass. ✽ *Psephellus karabaghensis* Sosn. ✽ *Psephellus pambakensis* Sosn. ✽ *Psephellus somcheticus* Sosn. ✽ *Psephellus transcaucasicus* Sosn. *Pyrethrum roseum* M. Bieb. *Pyretrum partenifolium* Willd. *Scozonera bicolor* Freyn. et Sint. *Scorzonera papposa* DC. ✽ *Senecio aurantiacus* (Hoppe ex Willd.) Less. ✽ *Senecio kolenathianus* ssp. *pseudoorientalis* (Schischk.) V. Avet. *Senecio taraxacifolius* (M. Bieb.) DC. ✽ *Solidago virgaurea* L.	*Artemisia pontica* L. *Artemisia purshiana* Boiss. *Aster alpinus* L. *Aster amellus* L. *Aster novae-angliae* L. *Aster novi-belgii* L. *Aster* cv. 'Ice Cool Pink' *Centaurea candidissima* Lam. *Centaurea depressa* M. Bieb. *Tripleurospermum causasicum* (Willd.) Hayek *Echinops cyane* L. *Echinops giganteus* A. Rich hort. *Echinops ritro* cv. 'Veitch's Blue' *Echinops sphaerocephalus* L. *Helichrysum bracteatum monstrosum* hort. *Helichrysum petiolare* O. M. Hilliar & B. L. Burtt *Helichrysum thianshanicum* Regel cv. 'Golden Baby' *Hieracium aurantiacum* L. *Inula ensifolia* L. *Inula glandulosa grandiflora* hort. *Inula grandiflora laciniata* hort. *Inula grandiflora* Willd. *Lactuca tatarica* (DC.) C. A. Mey. *Psephellus dealbatus* (Willd.) K. Koch *Psephellus karabagensis* Sosn. *Psephellus pambakensis* Sosn. *Psephellus somcheticus* Sosn. *Psephellus transcaucasicus* Sosn. *Pyrethrum parthenifolium* Willd. f. *aureum* hort. *Pyrethrum roseum* M. Bieb. × *hybridum* hort. *Pyrethrum roseum* (Adams) M. Bieb. *Pyrethrum uliginosum* Waldst. et Kit. *Pyrethrum cinerariifolium* Trev. *Scorzonera bicolor* Freyn. Et Sint. *Senecio elegans* L. *Solidago altissima* L. *Solidago canadensis* L. hort. *Solidago graminifolia* (L.) Salisb. *Solidago odora* Ait. *Solidago rugosa* Mill. *Solidago shortii* Torr. Et Gr. *Tanacetum szovitsii* (K. Koch) Grossh. *Tanacetum vulgare* L. *Taraxacum montanum* (C. A. Mey) DC.

Tanacetum chiliophyllum (Fisch. et C. A. Mey.) Sch. Bip. ✽ *Tanacetum coccineum* (Willd.) Grierson ✽ *Tanacetum parthenium* (L.) Sch. Bip. *Tanacetum szovitsii* (K. Koch) Grossh. *Tanacetum uniflorum* (Fisch. et C. A. Mey. ex DC.) Sch. Bip. *Tanacetum vulgare* L. ✽ *Taraxacum montanum* (C. A. Mey.) DC. ✽ *Telekia speciosa* (Schreb.) Baumg. ✽ *Tomanthea aucheri* DC. ✽ *Tomanthea daralaghezica* (Fom.) Takht. ✽ *Tomanthea spectabilis* (Fisch. et C. A. Mey.) Takht. ✽ *Tripleurospermum caucasicum* (Willd.) Hayek ✽ *Xeranthemum squarrosum* Boiss. ✽	*Telekia speciosa* (Schreb.) Baumg. *Tomanthea aucheri* DC. *Tomanthea daralaghezica* (Fom.) Takht. *Tomanthea spectabilis* (Fisch. et C. A. Mey.) Takht. *Xeranthemum annuum* L. *Xeranthemum annuum* L. cv. 'White Immortelle'
Balsaminaceae *Impatiens noli-tangere* L. ✽	**Balsaminaceae** *Impatiens balsamina* L. *Impatiens capensis* Meerb. *Impatiens hawkeri* W. Bull. *Impatiens hawkeri* 'Sun Patiens' *Impatiens parviflora* DC. *Impatiens walleriana* Hook. f.
Boraginaceae *Caccinia macranthera* (Banks et Sol.) Brand ✽ *Echium rubrum* Jacq. ✽ *Echium vulgare* L. ✽ *Lappula saxatilis* (Pall.) Kusn. ✽ *Macrothomia echioides* (L.) Boiss. *Moltkia coerulea* (Willd.) Lehm. ✽ *Myosotis alpestris* Smidth. ✽ *Myosotis sylvatica* (L.) Hil. ✽ *Onosma sericeum* Willd. ✽ *Rindera lanata* (Lam.) Gurke ✽	**Boraginaceae** *Caccinia macranthera* (Banks et Sol.) Brand *Caccinia strigosa* Boiss. *Echium rubrum* Jacq. *Echium vulgare* L. *Lappula saxatilis* (Pall.) Kusn. *Macrothomia echioides* (L.) Boiss. *Moltkia coerulea* (Willd.) Lehm. *Myosotis azorica* Wats. *Myosotis palustris* (L.) L. *Onosma sericeum* Willd. *Rindera lanata* (Lam.) Gurke
Brassicaceae *Aethionema edentulum* N. Busch ✽ *Aethionema puchellum* Boiss. Et Huet ✽ *Alyssum gehamense* Fed. ✽ *Alyssum trichostachyum* Rupr. *Anchonium elichrysifolium* (DC.) Boiss. ✽ *Arabis caucasica* Willd. ✽	**Brassicaceae** *Aethionema edentulum* N. Busch *Coluteocarpus vesicaria* (L.) Holmboe *Alyssum benthamii* hort. *Alyssum maritimum* hort. *Anchonium elichrysifolium* (DC.) Boiss. *Arabis albida* Steven *Arabis alpina* L.
Butomaceae *Butomus umbellatus* L. ✽	**Butomaceae** *Butomus umbellatus* L.

Campanulaceae *Asyneuma campanuloides* (M. Bieb. ex Sims) Bornm. ✽ *Asyneuma pulchellum* (Fisch. et C. A. Mey.) Bornm. ✽ *Asyneuma rigidum* (Willd.) Grossh. *Campanula alliariaefolia* Willd. ✽ *Campanula sxifraga* M. Bieb. ✽ *Campanula bononiensis* L. *Campanula bayerniana* ssp. *bayerniana* Rupr. ✽ *Campanula glomerata* ssp. *oblongifolia* (K. Koch) Fed. ✽ *Campanula latifolia* L. ✽ *Campanula rapunculoides* L. ✽ *Campanula sibirica* L. ✽ *Campanula stevenii* ssp. *beauverdiana* (Fomin) Rech. fil. et Schiman-Czeika ✽ *Campanula trautvetterii* Grossh. ✽ *Campanula tridentata* Schreb. ✽ *Campanula zangezura* (Lipsky) Kolak. et Serjukova *Symphyandra armena* ssp. *daralaghezica* (Grossh.) Fed. ✽	**Campanulaceae** *Asyneuma campanuloides* (M. Bieb. ex Sims) Bornm. *Campanula attica* L. *Campanula fragilis* Cyriee *Campanula latifolia* L. *Campanula medium* L. *Campanula persicifolia* L. *Campanula persicifolia* L. cv. 'Alba' *Campanula pyramidalis* L. *Campanula pusilla* Hanke *Symphyandra armena* (Steven) DC. *Symphyandra repens* Karpinosova
Cannabaceae *Humulus lupulus* L. ✽	**Cannabaceae** *Humulus lupulus* L. *Humulus lupulus* L. 'Cascade' *Humulus lupulus* L. 'Nugget' *Humulus lupulus* L. 'Willamette'
Caryophyllaceae *Arenaria dianthoides* Smith ✽ *Arenaria gypsophilloides* L. ✽ *Arenaria rotundifolia* M. Bieb. ✽ *Arenaria steveniana* Boiss. *Cerastium pseudo-kasbek* I. Vysokoostr. ✽ *Cerastium purpurascens* Adams ✽ *Cerastium szovitsii* Boiss. ✽ *Dianthus calocephalus* Boiss. *Dianthus cretaceous* Adams *Dianthus crinitus* Smith ✽ *Dianthus discolor* Smith *Dianthus libanotis* Labil ✽ *Dianthus orientalis* Adams *Dianthus raddeanus* Vierh. ✽ *Dianthus subulosus* Freyn et Conrath *Gypsophila bicolor* Freyn. Et Sint. ✽ *Gypsophila elegans* M. Bieb. ✽ *Gypsophila heteropoda* Fryen *Gypsophila szovitsii* Fisch. et C. A. Mey. *Gypsophila tenuifolia* M. Bieb. ✽ *Minuartia imbricata* (M. Bieb.) Woronov ✽	**Caryophyllaceae** *Agrostemma coeli – rosa* L. f. *Arenaria purpurascens* Ram. *Cerastium biebersteinii* DC. *Cerastium purpurascens* Adams *Cerastium tomentosum* DC. *Dianthus armeria* L. *Dianthus barbatus* L. *Dianthus caryophyllus* DC. *Dianthus chinensis* L. *Dianthus deltoides* L. *Dianthus glacialis* Haenke *Dianthus gratianopolitanus* Vill. *Dianthus plumarius* L. *Gypsophila paniculata* L. *Gypsophila repens* L. *Gypsophila repens* L. var. *rosea* Toyl. *Minuartia verna* (L.) *Hiern* *Saponaria calabrica* Curs. *Saponaria ocymoides* L. *Saponaria officinalis* L.

Minuartia lineata (C. A. Mey.) Bornm. *Saponaria officinalis* L. ✽ *Silene chlorifolia* Smith ✽ *Silene compacta* Fisch. ✽ *Silene dianthoides* Pers. ✽ *Silene iberica* M. Bieb. *Silene italica* (L.) Pers. *Silene meyeri* Fenzl. *Silene raddeana* Trautv. ✽ *Silene wallichiana* Klotzsch.	*Silene acaulis* L. *Silene maritima* With.
Chenopodiaceae *Atriplex hortensis* L. ✽ *Kochia prostrata* (L.) Schrad. ✽ *Kochia scoparia* (L.) Schrad. ✽ *Seidlitzia florida* (M. Bieb.) Bunge ✽	**Chenopodiaceae** *Atriplex hortensis* L. *Kochia scoparia* f. *trichophila* Scinz et Jhell. *Seidlitzia florida* (M. Bieb.) Bunge
Colchicaceae *Colchicum nina* Sosn. ✽ *Colchicum szovitsii* Fisch et C. A. Mey. ✽ *Colchicum zangezurum* Grossh. *Merendera raddeana* Regel ✽ *Merendera trigiyna* (Steven ex Adam) Stapf ✽ *Merendera sobolifera* Fisch. et C.A. Mey. ✽	**Colchicaceae** *Colchicum autumnale* L. *Colchicum bivonae* Guss. *Colchicum speciosum* Stev. *Merendera raddeana* Regel *Merendera trigyna* (Adams) Woronow *Merendera sobolifera* Fisch. et C.A. Mey.
Convallariaceae *Polygonatum glaberrimum* K. Koch *Polygonatum orientale* Desf. ✽ *Polygonatum vertcillatum* (L.) All.	**Convallariaceae** *Polygonatum humile* Fisch. ex Maxim. *Polygonatum odoratum* (Mill.) Druce *Polygonatum polyanthemum* (M. Bieb.) A. Dietr.
Convolvulaceae *Convolvulus lineatus* L. ✽	**Convolvulaceae** *Convolvulus lineatus* L. *Convolvulus japonicus* Thunb.
Crassulaceae *Rosularia elymaitica* (Boiss et Hausskn.) Berger ✽ *Rosularia persica* (Boiss.) Berger ✽ *Rosularia radiciflora* (Steud.) Bor. ✽ *Sedum acre* L. ✽ *Sedum album* L. ✽ *Sedum annuum* L. *Sedum caucasicum* (Grossh.) A. Bor. ✽ *Sedum gracile* C. A. Mey. *Sedum hispanicum* L. ✽ *Sedum oppositifolium* Sims. ✽ *Sedum pallidum* M. Bieb. ✽ *Sedum pilosum* M. Bieb. *Sedum sempervivoides* Fisch. ✽ *Sedum tenellum* M. Bieb. ✽ *Sempervivum globiferum* L. ✽	**Crassulaceae** *Rosularia sempervivum* (M. Bieb.) Berger *Sedum allantoides* hort. *Sedum carneum* hort. *Sedum fabaria* W. D. J. Koch *Sedum farinosum* hort. *Sedum lydium* Boiss. f. aureum *Sedum maximum* (L.) Hoffm. *Sedum purpureum* (L.) Schult. *Sedum spurium* M. Bieb. *Sempervivum arachhoideum* L. *Sempervivum tabulaeforme* Haw. *Sempervivum tectorum* L.
Cucurbitaceae	**Cucurbitaceae**

Bryonia alba L. ✽ *Bryonia dioica* Jacq.	*Bryonia alba* L. *Bryonia dioica* Jacq.
Cyperaceae *Carex brevicollix* DC. *Cyperus difformis* L.	**Cyperaceae** *Carex siderosticta* Hance *Cyperus alternifolius* L.
Dioscoreaceae *Tamus communis* L.	**Dioscoreaceae** *Tamus communis* L.
Dipsacaceae *Cephalaria armeniaca* Bordz. ✽ *Cephalaria gigantea* (Led.) Bobr. ✽ *Scabiosa bipinnata* K. Koch ✽ *Scabiosa caucasica* M. Bieb. ✽ *Scabiosa columbaria* L.	**Dipsacaceae** *Cephalaria alpina* Schrad. *Cephalaria dipsacoides* Kar. et Kir. *Scabiosa atropurpurea* L. *Scabiosa* cv. 'Black Knight' *Scabiosa* cv. 'Butterfly Blue' *Scabiosa* cv. 'Pink Mist' *Scabiosa* cv. 'Fama White'
Euphorbiaceae *Euphorbia armena* Prokh. ✽ *Euphorbia marshalliana* Boiss. ✽	**Euphorbiaceae** *Euphorbia marginata* Pursh *Euphorbia myrsinites* L. *Euphorbia polychroma* Kern.
Fabaceae *Anthyllis vulneraria* L. subsp. *polyphylla* (DC.) Nyman *Coronilla varia* L. ✽ *Galega orientalis* Lam. ✽ *Hedysarum caucasicum* M. Bieb. ✽ *Hedysarum atropatanum* Bunge ex Boiss. *Hedysarum elegans* Boiss. et A. Huet. *Hedysarum formosum* Fisch. et C. A. Mey. ✽ *Hedysarum sericeum* M. Bieb. *Lathyrus aureus* (Steven) D. Brandza *Lathyrus cyaneus* (Steven) K. Koch ✽ *Lathyrus laxiflorus* (Desf.) 0. Kuntze *Lathyrus miniatus* M. Bieb. ✽ *Lathyrus roseus* Steven✽ *Lathyrus tuberosus* L. ✽ *Lotus caucasicus* Kuprian ex Juz. ✽ *Lotus gebelia* Vent. ✽ *Onobrychis atropatana* Boiss. ✽ *Onobrychis biebersteinii* Sirjaev *Onobrychis transcaucasica* Grossh. ✽ *Oxytropis cyanea* M. Bieb. *Oxytropis karjaginii* Grossh. ✽ *Pisum elatius* M. Bieb. ✽ *Pisum sativum* L. ✽ *Trifolium canescens* Willd. ✽ *Trifolium trichocephalum* M. Bieb. ✽ *Vicia crocea* (Desf.) Fedtsch. ✽ *Vicia grandiflora* Scop. ✽ *Vicia variegata* Willd. ✽	**Fabaceae** *Anthyllis vulneraria* L. *Anthyllis vulneraria* L. var. *coccinea* *Astragalus falcatus* Lam. *Coronilla emerus* L. *Coronilla varia* L. *Colutea arborescens* L. *Galega officinalis* L. *Galega orientalis* Lam. *Genista tinctoria* Boiss. *Glycyrrhiza glabra* L. *Hedysarum coronarium* L. *Hedysarum elegans* Boiss. et A. Huet. *Lathyrus latifolius* L. *Lathyrus odoratus* L. *Lathyrus vernus* (L.) Bernh. *Lotus caucasicus* Kuprian ex Juz. *Lotus corniculatus* L. *Lotus gebelia* Vent. *Medicago falcata* L. *Medicago sativa* L. *Medicago ×varia* Martyn *Melilotus albus* Medik. *Melilotus officinalis* (L.) Pall. *Onobrychis viciifolia* Scop. *Ononis spinosa* L. *Oxytropis karjaginii* Grossh. *Pisum elatius* M. Bieb. *Pisum sativum* L. *Trifolium incarnatum* L.

	Trifolium ochroleucon Huds. (Sulfur clover) *Trifolium pratense* L. *Trifolium repens* L. *Trifolium repens* L. 'William' *Trifolium resupinatum* L. *Trifolium rubens* L. *Trifolium rubens* 'Red Feather' *Vicia sativa* L.
Fumariaceae *Corydalis angustifolia* (M. Bieb.) DC.✽ *Corydalis elderi* Zuce *Corydalis nariniana* Fed.	**Fumariaceae** *Corydalis cava* (L.) Schweig. et Korte *Corydalis nobilis* (L.) Pers.
Gentianaceae *Gentiana caucasea* Lodd. Ex Sims *Gentiana cruciata* L. ✽ *Gentiana gelida* M. Bieb. ✽ *Gentiana olivieri* Griseb. *Gentiana pontica* Soltok. *Gentiana septemfida* Pall.	**Gentianaceae** *Gentiana acaulis* L. *Gentiana angustifolia* Vill. *Gentiana asclepiadea* L. *Gentiana lutea* L. *Gentiana septemfida* Pall. *Gentiana verna* L.
Geraniaceae *Geranium collinum* Stef. Et Willd. ✽ *Geranium ibericum* Cav. *Geranium palustre* L. *Geranium platypelatum* Fisch. et C. A. Mey. *Geranium ruprechtii* (Woronow) Grossh. *Geranium sanguineum* L. ✽ *Geranium silvaticum* L.	**Geraniaceae** *Geranium dalmaticum* (Beck) Rech. *Geranium ibericum* Cav. *Geranium macrorrhizum* L. *Geranium* × *oxonianum* P.F. Yeo *Geranium* × *oxonianum* P.F. Yeo cv. 'Wargrave Pink' *Geranium phaeum* L. *Geranium platypelatum* Fisch. et C. A. Mey. *Geranium sanguineum* L.
Globulariaceae *Globularia trichosantha* Fisch. et C. A. Mey. ✽	**Globulariaceae** *Globularia trichosantha* Fisch. et C. A. Mey.
Hemerocallidaceae *Hemerocallis fulva* (L.) L. (naturalized) ✽	**Hemerocallidaceae** *Hemerocallis fulva* (L.) L.
Hyacinthaceae *Bellevalia glauca* (Lindl.) Kunth ✽ *Bellevalia longistyla* (Miscz.) Grossh. ✽ *Bellevalia paradoxa* (Fisch. et C. A. Mey.) Boiss. ✽ *Bellevalia pycnantha* (K. Koch) Losinsk. ✽ *Bellevalia sarmatica* (Pall. ex Georgi) Woronow *Muscari caucasicum* (Griseb.) Baker ✽ *Muscari longipes* Boiss. ✽ *Muscari neglectum* Guss. ✽ *Muscari pallens* (M. Bieb.) Fisch. ✽ *Muscari sosnowskyi* Schchian ✽ *Muscari szovitsianum* Baker ✽ *Muscari tenuiflorum* Tausch ✽	**Hyacinthaceae** *Bellevalia paradoxa* (Fisch. et C. A. Mey.) Boiss. *Bellevalia pycnantha* (K. Koch) Losinsky *Muscari botryoides* (L.) Mill. *Muscari latifolium* J. Kirk. *Muscari racemosum* Mill. *Muscari szovitsianum* Baker *Ornithogalum arabicum* L. *Ornithogalum arcuatum* Steven *Ornithogalum nutans* L. *Ornithogalum comosum* L. *Ornithogalum pyramidale* L.

Ornithogalum balansae Boiss. *Ornithogalum hajastanum* Agapova *Ornithogalum montanum* Cirillo ✽ *Ornithogalum navaschinii* Agapova *Ornithogalum platyphyllum* Boiss. ✽ *Puschkinia scilloides* Adam ✽ *Scilla armena* Grossh. ✽ *Scilla caucasica* Miscz. ✽ *Scilla mischtschenkoana* Grossh. ✽ *Scilla siberica* Haw. ✽	*Ornithogalum pyrenaicum* L. *Ornithogalum umbellatum* L. *Puschkinia scilloides* Adams *Scilla bifolia* L. *Scilla cernua* Redoute *Scilla italica* L. *Scilla hispanica* Mill. *Scilla siberica* Haw.
Hypericaceae *Hypericum eleonorae* Elenevsky *Hypericum elongatum* C. A. Mey. ✽ *Hypericum perforatum* L. ✽ *Hypericum scabrum* L. ✽	**Hypericaceae** *Hypericum aegypticum* L. *Hypericum androsaemum* L. *Hypericum balearicum* L. *Hypericum bellum* H. L. Li *Hypericum calycinum* L. *Hypericum elodes* L. *Hypericum forrestii* (Chitt.) N. Robson *Hypericum kalmianum* L. *Hypericum kouytchense* H. Lév. *Hypericum olympicum* L. *Hypericum perforatum* L. *Hypericum* × *moserianum* Andre (*H. calycinum* × *H. patulum*) *Hypericum* 'Hidcote' *Hypericum* 'Rowallane'
Iridaceae *Crocus adami* J. Gay ✽ *Crocus speciosus* M. Bieb. ✽ *Gladiolus atroviolaceus* Boiss. ✽ *Gladiolus halophilus* Boiss. & Heldr. ✽ *Gladiolus italicus* Mill. *Gladiolus kotschyanus* Boiss. ✽ *Gladiolus tenuis* M. Bieb. *Iris caucasica* Hoffm. ✽ *Iris demetrii* Akhv. et Mirzoeva ✽ *Iris elegantissima* Sosn. ✽ *Iris furcata* M. Bieb. ✽ *Iris grossheimii* Woronow ex Grossh. ✽ *Iris lycotis* Woronow ✽ *Iris musulmanica* Fomin ✽ *Iris paradoxa* Steven ✽ *Iris pseudocaucasica* Grossh. ✽ *Iris reticulata* M. Bieb. ✽ *Iris sibirica* L. ✽ *Iris sulphurea* K. Koch ✽	**Iridaceae** *Crocus chrysanthus* (Herb.) Herb. *Crocus hybridus* hort. *Crocus sativus* L. *Crocus vernus* L. *Gladiolus gandavensis* hort. *Gladiolus hybridus* hort. *Gladiolus primulinus* hort. *Gladiolus princeps* hort. *Iris elegantissima* Sosn. *Iris florentina* L. *f. alba* *Iris germanica* L. *Iris laevigata var. kaempferi* (Siebold ex Lem.) Maxim. *Iris latifolia* (Mill.) Voss *Iris pallida* Lam. *Iris planifolia* (Mill) T. Durant & Schinz *Iris pumila* L. hybrida *Iris pseudacorus* L. *Iris reticulata* M. Bieb. *Iris sibirica* L. *Iris unguicularis* Poir. *Iris xiphium* L.
Ixioliriaceae	**Ixioliriaceae**

Ixiolirion tataricum (Pall.) Herb. & Traub. ✽	*Ixiolirion tataricum* (Pall.) Herb. & Traub.
Lamiaceae *Betonica macrantha* K. Koch✽ *Betonica officinalis* L. ✽ *Betonica orientalis* L. ✽ *Calamintha grandiflora* (L.) Moench *Dracocephalum austriacum* L. *Dracocephalum multicaule* Montbr. et Auch. ex Benth. ✽ *Dracocephalum ruyschiana* L. *Eremostachys laciniata* (L.) Bunge ✽ *Hyssopus angustifolius* M. Bieb. ✽ *Lamium album* L. ✽ *Lamium amplexicaule* L. *Lamium purpureum* L. *Marrubium astracanicum* Jack. *Nepeta betonicifolia* C. A. Mey. ✽ *Nepeta mussinii* Spreng. ✽ *Origanum vulgare* L. ✽ *Phlomis orientale* Mill. ✽ *Phlomis pungens* Willd. ✽ *Salvia hydrangea* DC. ex Benth. ✽ *Salvia limbata* C. A. Mey. ✽ *Salvia pachystachys* Trautv. ✽ *Saturea macrantha* C. A. Mey. ✽ *Scutellaria orientalis* L. ✽ *Scutellaria orientalis* ssp. *karjaginii* (Grossh.) Fed. *Scutellaria orientalis* ssp. *sosnowskyi* (Takht.) Fed. *Scutellaria sevanensis* Sosn. ex Grossh. *Stachys balansae* Boiss. et Kotschy ex Boiss. *Stachys inflata* Benth. ✽ *Stachys lavandulaefolia* Vahl ✽ *Stachys stschegleewii* Sosn. ✽	**Lamiaceae** *Betonica macrantha* K. Koch *Betonica officinalis* L. *Calamintha grandiflora* (L.) Moench *Dracocephalum multicaule* Montbr. et Auch. ex Benth. *Eremostachys laciniata* (L.) Bunge *Hyssopus angustifolius* M. Bieb. *Lamium album* L. *Marrubium goktschaicum* N. P. Popov *Nepeta grandiflora* M. Bieb. *Nepeta mussinii* Spreng. *Origanum vulgare* L. *Phlomis orientale* Mill. *Phlomis pungens* Willd. *Salvia coccinea* L. f. *Salvia patens* Cav. *Salvia splendens* Sellow ex Schult. *Saturea macrantha* C. A. Mey. *Scutellaria altaica* Ledeb. ex A. Spreng. *Scutellaria orientalis* L. *Scutellaria scordiifolia* Fisch. ex Schrank *Stachys bizantina* K. Koch *Stachys germanica* L. *Stachys lanata* Jacq. *Stachys macrantha* (K. Koch) Stearn *Stachys officinalis* (L.) Trevis
Liliaceae *Fritillaria caucasica* Adam ✽ *Fritillaria collina* Adam ✽ *Fritillaria kurdica* Boiss. et Noë ✽ *Gagea alexeenkoana* Miscz. *Gagea commutata* K. Koch ✽ *Gagea germainae* Grossh. *Gagea tenuifolia* (Boiss.) Fomin ✽ *Lilium armenum* (Miscz. ex Grossh.) Manden. ✽ *Rhinopetalum gibbosum* (Boiss) Losinsk. & Vved. ✽ *Tulipa biflora* Pall. ✽ *Tulipa florenskyi* Woronow ✽ *Tulipa julia* K. Koch ✽ *Tulipa sosnowskyi* Akhv. et Mirzoeva ✽	**Liliaceae** *Fritillaria acmopetala* Boiss. *Fritillaria meleagris* L. *Fritillaria imperialis* L. *Gagea reticulata* (Pall.) Schult. et Schult. *Gagea alexeenkoana* Miscz. *Gagea germainae* Grossh. *Lilium armenum* (Miscz. ex Grossh.) Manden. *Lilium candidum* L. *Lilium giganteum* Wall. *Lilium tigrinum* Ker Gawl. *Rhinopetalum gibbosum* (Boiss) Losinsk. et Vved. *Tulipa gesneriana* L. (cult.)

	Tulipa acuminata Vahl. ex Hornem *Tulipa greigii* Regel *Tulipa marjoletti* E.P. Perrier et Songeon *Tulipa suaveolens* Roth.
Linaceae *Linum austriacum* L. ✽ *Linum hypericifolium* Salisb. ✽	**Linaceae** *Linum alpinum* Jacq. *Linum grandiflorum* Desf. (rubrum) hort. *Linum grandiflorum* Desf. (roseum) hort.
Lythraceae *Lythrum salicaria* L.	**Lythraceae** *Lythrum salicaria* L.
Malvaceae *Alcea rugosa* Alef. ✽ *Alcea tabrisiana* (Boiss. et Buhse) Iljin✽ *Althaea armeniaca* Ten. ✽ *Althaea cannabina* L. ✽ *Althaea officinalis* L. ✽ *Lavatera thuringiaca* L. *Malva silvestris* L. ✽	**Malvaceae** *Alcea rosea* L. *Alcea rosea* L. cv. 'Chater's Double' *Alcea rosea* L. cv. 'Blacknight' *Alcea setosa* (Boiss.) Alef. *Althaea officinalis* L. *Lavatera thuringiaca* L. *Lavatera trimestris* L. *Lavatera splendens* hort. *Malva moschata* L.
Nymphaeaceae *Nymphaea alba* L. ✽ *Nymphaea lutea* L. ✽	**Nymphaeaceae** *Nymphaea alba* L. *Nymphaea lutea* L.
Onagraceae *Chamaenerion angustifolium* (L.) Scop. *Epilobium anagallidifolium* Lam. ✽	***Onagraceae*** *Chamaenerion angustifolium* (L.) Scop. *Chamaenerion angustifolium* (L.) Scop. 'Stahl Rose' *Epilobium alpinum* L.
Orchidaceae *Anacamptis pyramidalis* (L.) Rich. ✽ *Cephalanthera rubra* (L.) Rich. ✽ *Gymnadenia conopsea* (L.) R. Br. *Ophrys oestrifera* M. Bieb. subsp. *oestrifera* *Orchis coriophora* L. *Orchis iberica* (M. Bieb. ex Willd.) Soó *Orchis mascula* (L.) L. ✽ *Orchis palustris* Jacq. *Orchis punctulata* Steven ex Lindl. *Orchis purpurea* Huds. ✽ *Orchis stevenii* Rchb.f. *Plantathera chlorantha* (Custer) Rchb. ✽	**Orchidaceae** *Aerides crispum* Lindl. *Cephalanthera damasonium* (Mill.) Druce *Cephalanthera damasonium* (Mill.) Druce f. *spicata* (W. Zimm.) Soó *Cephalanthera longifolia* (L.) Fritsch var. *rosea* Perko *Cephalanthera rubra* (L.) Rich. *Gymnadenia conopsea* (L.) R. Br. *Ophrys oestrifera* M. Bieb. *Orchis militaris* L. *Phragmipedium wallisii* (Rchb.f) Garay *Plantathera bifolia* (L.) Rich.
Papaveraceae *Glaucium corniculatum* (L.) Rudolph ✽ *Glaucium elegans* Fisch. et C. A. Mey.	**Papaveraceae** *Glaucium corniculatum* (L.) Rudolph *Glaucium flavum* Crantz

Glaucium grandiflorum Boiss. & A. Huet. *Papaver arenarium* M. Bieb. ✽ *Papaver armeniacum* (L.) DC. subsp. *armeniacum* *Papaver bipinnatum* C. A. Mey. *Papaver commutatum* Fisch. et C. A. Mey. ✽ *Papaver dubium* L. *Papaver hybridum* L. *Papaver macrostomum* Boiss. et Huet ✽ *Papaver monanthum* Trautv. *Papaver orientale* L. ✽ *Papaver paucifoliatum* (Trautv.) Fedde ✽ *Papaver persicum* Lindl. *Papaver roseolum* M. V. Agab. & Fragman *Roemeria hybrida* (L.) DC. *Roemeria refracta* (Steven) DC. ✽	*Glaucium flavum* Crantz var. *aurantiacum* *Glaucium grandiflorum* Boiss. & A. Huet. *Glaucium grandiflorum* Boiss. & A. Huet. × *G. flavum* Crantz *Papaver alpinum* L. *Papaver bracteatum* Lindl. *Papaver commutatum* Fisch. et C. A. Mey. *Papaver glaucum* Boiss. &. Hausskn. ex Boiss. *Papaver nudicaule* L. *Papaver orientale* L. *Papaver orientale* L. cv. 'Garden Glory' *Papaver orientale* L. cv. 'Perry's White' *Papaver orientale* L. cv. 'Prince of Orange' *Papaver orientale* L. cv. 'Turkenlouis' *Papaver rhoeas* L. *Papaver rhoeas* L. cv. 'Pierrot' *Papaver roseolum* M. V. Agab. & Fragman *Papaver somniferum* L. *Papaver somniferum* ssp. *eurasiaticum* Vessel. *Papaver umbrosum* hort. *Roemeria hybrida* (L.) DC. *Roemeria refracta* (Steven) DC. *Roemeria argemone* (L.) C. Morales, R. Mend. & Romero García
Poaceae *Agropyron desertorum* (Fisch. ex Link) Schult. *Agrostis gigantea* Roth *Briza elatior* Sibth. & Sm. *Botriochloa ischaemum* (L.) Keng. *Bromopsis inermis* (Leyss.) Holub *Cynodon dactilon* (L.) Pers. *Dactylis glomerata* L. ✽ *Elytrigia repens* (L.) Nevski *Festuca rubra* L. *Festuca ruprechtii* (Boiss.) V. I. Krecz. & Bobrov *Lolium perenne* L. *Melica altissima* L. ✽ *Pennisetum orientale* Rich. *Phleum pratense* L. ✽ *Poa alpina* L. ✽ *Polypogon monspeliensis* (L.) Desf. ✽ *Stipa lessingiana* Trin. ✽ *Stipa pennata* L. subsp. *pennata* ✽	**Poaceae** *Agropyron desertorum* (Fisch. ex Link) Schult. *Agrostis alba* L. *Agrostis alba* L. var. *stolonifera* (L.) Sm. *Aristida junciformis* Trin. et Rupr. *Aristida plumosa* L. *Botriochloa ischaemum* (L.) Keng. *Briza media* L. *Bromopsis inermis* (Leyss.) Holub *Bromopsis inermis* (Leyss.) Holub cv. 'Skinner's Gold' *Cynodon dactilon* (L.) Pers. *Elytrigia repens* (L.) Nevski *Dactylis glomerata* L. *Festuca scoparia* Hook f. *Lolium perenne* L. *Melica uniflora* Retz.

Stipa pulcherrima K. Koch *Stipa transcaucasica* Grossh. ✽ *Stipagrostis plumosa* (L.) Munro ex T. Anders. ✽	*Melica nutans* L. *Pennisetum alopecuroides* (L.) Spreng. *Phleum pratense* L. *Poa alpina* L. *Polypogon monspeliensis* (L.) Desf. *Stipa gigantea* Lag. *Stipa pennata* L.
Plumbaginaceae *Acanholimon armenum* Boiss. ✽ *Acantholimon avenaceum* Bunge *Acantholimon bracteatum* (Gerard) Boiss. ✽ *Acantholimon calvertii* Boiss. *Acantholimon caryophyllaceum* Boiss. *Acantholimon fedorovii* Tamamsch. et Mirz. ✽ *Acantholimon glumaceum* (Jaub. et Spach.) Boiss. ✽ *Acantholimon hohenackeri* (Jaub. et Spach.) Boiss. *Acantholimon takhtajanii* Ogan. *Acantholimon vedicum* Mirz. ✽ *Limonium meyeri* (Boiss.) Kuntze. ✽	**Plumbaginaceae** *Acantholimon avenaceum* Bunge *Acantholimon glumaceum* (Jaub. et Spach.) Boiss. *Acantholimon pterostegium* Bunge *Acantholimon purpureum* Korov. *Limonium sinuatum* (L.) Mill. *Limonium californicum* (Boiss.) A. Heller *Limonium carolinianum* (Walter) Britton *Limonium platyphyllum* Lincz. *Limonium gmelinii* (Willd.) Kuntze *Limonium perezii* (Stapf) F. T. Hubbard
Polemoniaceae *Polemonium caeruleum* L. var. *caucasicum* (N. Busch.) V. Avet. ✽	**Polemoniaceae** *Polemonium boreale* Adams *Polemonium boreale* Adams cv. 'Heavenly Habit' *Polemonium caeruleum* L. *Polemonium caeruleum* L. cv. 'Bambino blue' *Polemonium caeruleum* L. var. *yezoence* (Miyabe & Kudô) H. Hara *Polemonium reptans* L. *Polemonium sibiricum* D. Don
Polygalaceae *Polygala caucasica* Rupr. ✽	**Polygalaceae** *Polygala caucasica* Rupr. *Polemonium caeruleum* L.
Polygonaceae *Polygonum alpinum* All. ✽ *Polygonum amphibium* L. *Polygonum aviculare* L. ✽	**Polygonaceae** *Polygonum affine* D. Don *Polygonum alpinum* All. *Polygonum amphibium* L. *Polygonum aviculare* L. *Polygonum cuspidatum* Siebold et Zucc. *Polygonum multiflorum* Thunb. *Polygonum orientale* L.
Polypodiaceae *Cystopteris fragilis* (L.) Bernh. *Dryopteris filix mas* (L.) Schott ✽ *Polypodium vulgare* L.	**Polypodiaceae** *Cystopteris fragilis* (L.) Bernh. *Dryopteris austriaca* (Jacq.) Woynar *Dryopteris filix mas* (L.) Schott

Polystichum braunii Fee. *Polystichum lobatum* (Stev.) Presl *Polystichum lonchitis* (L.) Roth.	*Polypodium vulgare* L. *Polystichum falcatum* (L. f) Diels *Polystichum tripteron* (G. Kunze) C. Presl.
Primulaceae *Androsace albana* Steven *Androsace chamaejasme* Host ✽ *Androsace villosa* L. *Cyclamen vernum* Sw. ✽ *Primula algida* Adams ✽ *Primula amoena* M. Bieb. ✽ *Primula cordifolia* Rupr. *Primula pallasii* Lehm. *Primula ruprechtii* Kusn. *Primula tornefortii* Rupr. *Primula veris* subsp. *macrocalyx* ✽ *Primula woronowii* A. Los. ✽	**Primulaceae** *Androsace septentrionalis* L. *Androsace chamaejasme* Wulf. *Cyclamen persicum* Mill. *Primula acaulis* Hill *Primula auriculata* Lam. *Primula denticulata* Smith *Primula elatior* (L.) Hill *Primula japonica* A. Gray *Primula sieboldii* E. Moor. *Primula vulgaris* Huds. *Primula veris* L. Primula cv. ‘Belarina Amethyst Ice’ Primula cv. ‘Crescendo Bright Red’ Primula cv. ‘Zebra Blue’
Ranunculaceae *Aconitum anthora* L. *Aconitum nasutum* Fisch. ✽ *Aconitum orientale* Mill. *Anemone caucasica* Willd. ✽ *Anemone fasciculata* L. ✽ *Aquilegia olympica* Boiss. *Caltha polypetala* Hochst. ✽ *Consolida orientalis* (J. Gay) Schröd. ✽ *Delphinium buschianum* Grossh. *Delphinium flexuosum* M. Bieb. ✽ *Delphinium foetidum* Lomak. ✽ *Delphinium freynii* Conrath *Delphinium linearilobum* (Trautv.) N. Busch *Ficaria calthifolia* Reichenb. *Ficaria fascicularis* K. Koch ✽ *Helleborus caucasicus* A. Br. *Pulsatilla albana* (Steven) Bercht. ✽ *Ranunculus caucasicus* M. Bieb. ✽ *Ranunculus brachylobus* Boiss. et Huet. *Ranunculus divaricatus* Schrank *Ranunculus lingua* L. *Ranunculus szovitsianum* Boiss. *Ranunculus trichophyllus* Chaix *Thalictrum minus* L. ✽ *Trollius patulus* Salisb.	**Ranunculaceae** *Aconitum napellus* L. f. *bicolor* hort. *Aconitum pyramidalis* hort. *Anemone coronaria* L. *Anemone fulgens* J. Gray *Anemone japonica* Houtt. *Anemone pulsatilla* L. *Anemone sylvestris* L. *Aquilegia alpine* L. hort. *Aquilegia hinckleyana* Munz *Aquilegia skinneri* Hook. hort. *Batrachium divaricatum* (Schrank) Schur *Caltha palustris* L. *Delphinium ajacis* L. *Consolida orientalis* (J. Gay) Schröd. *Delphinium chinense* Fisch. ex DC. *Delphinium* × *cultorum* Voss. hort. *Delphinium grandiflorum* L. *Delphinium nudicaule* Torr. et A. Gray *Ficaria calthifolia* Reichenb. *Ficaria fascicularis* K. Koch *Ficaria verna* Huds. *Helleborus* ×*hybridus* hort. ex Vilmorin *Helleborus niger* L. *Helleborus viridis* L. *Pulsatilla halleri* Willd. *Pulsatilla montana* Rchb. *Pulsatilla patens* (L.) Mill. *Pulsatilla pratensis* (L.) Mill. *Pulsatilla vernalis* Mill. *Ranunculus aconitifolius* L.

	Ranunculus aquatilis L. *Ranunculus asiaticus* L. hort. *Ranunculus asiaticus* L. *Thalictrum alpinum* L. *Thalictrum minus* L. *Trollius asiaticus* L. *Trollius europaeus* L.
Resedaceae *Reseda microcarpa* Muell. ✽	**Resedaceae** *Reseda odorata* L. f. *grandiflora*
Rosaceae *Alchemilla grossheimii* Juz. *Alchemilla oxysepala* Juz. ✽ *Filipendula hexapetala* Gilib. ✽ *Filipendula ulmaria* (L.) Maxim. ✽ *Geum rivale* L. ✽ *Geum urbanum* L. ✽ *Potentilla crantzii* (Crantz) Beck. ✽ *Potentilla gelida* C. A. Mey. ✽ *Potentilla impolita* Wahlenb *Potentilla porphyrantha* Juz. ✽ *Potentilla raddeana* (Wolf.) Juz. ✽ *Potentilla recta* L. ✽ *Sanguisorba officinalis* L. ✽	**Rosaceae** *Alchemilla caucasica* Buser *Alchemilla mollis* (Buser) Rothm. *Alchemilla mollis* cv. 'Auslese' *Alchemilla mollis* cv. 'Irish Silk' *Alchemilla mollis* cv. 'Robusta' *Alchemilla pubescens* Willd. *Alchemilla vulgaris* L. *Filipendula camtschatica* (Pall.) Maxim. *Filipendula palmata* Maxim. *Filipendula palmata* Maxim. Cv. 'Goteborg' *Filipendula purpurea* Maxim. *Filipendula rubra* (Hill) B. L. Rob. hort. *Filipendula rubra* (Hill) B. L. Rob. cv. 'Queen of the prairie' *Filipendula ulmaria* (L.) Maxim. *Filipendula vulgaris* Moench *Filipendula vulgaris* Moench cv. 'Multiplex' *Geum coccineum* Lindl. *Potentilla atrosanguinea* G. Lodd. ex D. Don *Potentilla alpina* Dalla Torre hort. *Potentilla* × *hopwoodiana* (Pink Cinquefoil) *Sanguisorba magnifica* Schischkin et Kom. *Sanguisorba menziesii* Rydb. *Sanguisorba officinalis* L. *Sanguisorba officinalis* L. cv. 'Tink Tanna' *Sanguisorba officinalis* L. 'Red Tunder'
Rubiaceae *Asperula glomerata* (M. Bieb.) Griseb. ✽ *Asperula molluginoides* (M. Bieb.) Reichenb. *Asperula prostrata* (Adams) K. Koch *Galium atriculatum* Lam. *Gallium coronatum* Sibth. et Smith *Gallium sosnowskyi* Mand. ✽ *Galium vernum* Scop.	**Rubiaceae** *Asperula aristata* L. f. *Asperula azurea* Jaub. & Spach *Asperula arvensis* L. *Asperula gussonei* Boiss. *Asperula odorata* L. *Galium intermedium* Schult. *Galium aparine* L.

Galium verum L. *Rubia tinctorum* L. ✽	*Galium multiflorum* Kellogg *Galium odoratum* (L.) Scop. *Rubia tinctorum* L.
Rutaceae *Dictamnus albus* ssp. *caucasicus* (Fisch. et C. A. Mey.) N. Wint. ✽	**Rutaceae** *Dictamnus albus* L. *Dictamnus albus* L. ‘Purpureus’ *Dictamnus albus* L. 'Rubra'
Saxifragaceae *Parnassia palustris* L. *Saxifraga cartilaginea* Willd. ✽ *Saxifraga cymbalaria* L. ✽ *Saxifraga exarata* Vill. *Saxifraga juniperifolia* Adam *Saxifraga kolenatiana* Rgl. *Saxifraga moschata* Wulf *Saxifraga sibirica* L. ✽	**Saxifragaceae** *Parnassia palustris* L. *Saxifraga aizoon* Jacq. *Saxifraga caespitosa* A. Gray *Saxifraga cotyledon* L. *Saxifraga longifolia* hybrida hort. *Saxifraga muscoides* Wulfen *Saxifraga oppositifolia* L. *Saxifraga paniculate* Mill. *Saxifraga pyramidalis* Lap. *Saxifraga stolonifera* Curtis *Saxifraga stolonifera* Curtis cv. ‘Maroon Beauty’ *Saxifraga umbrosa* L.
Scrophulariaceae *Digitalis ferruginea* L. *Dodartia orientalis* L. ✽ *Linaria grandiflora* Desf. ✽ *Linaria kurdica* Boiss. et Hohen. *Linaria schelkovnikowii* Schischk. *Linaria zangezura* Grossh. *Pedicularis armena* Boiss. et Huet. ✽ *Pedicularis condensata* M. Bieb. *Pedicularis crassifolia* Bunge *Pedicularis sibtorpii* Boiss. ✽ *Pedicularis wilhelmsiana* Fisch. ex M. Bieb. *Verbascum pyramidatum* M. Bieb. *Verbascum thapsus* L. ✽ *Veronica armena* Boiss. et Huet. ✽ *Veronica gentianoides* Vahl ✽ *Veronica minuta* (K. Koch) K. Koch *Veronica multifida* L. ✽ *Veronica orientalis* Mill. ✽ *Veronica peduncularis* M. Bieb. ✽	**Scrophulariaceae** *Digitalis grandiflora* Mill. *Digitalis purpurea* L. *Dodartia orientalis* L. *Linaria aureo-purpurea* hort. *Linaria bipartita* Willd. *Linaria dalmatica* Mill. *Linaria maroccana* Hook. *Pedicularis caucasica* M. Bieb. *Pedicularis sibthorpii* Boiss. *Verbascum blattaria* L. *Verbascum denciflorum* Bertol *Verbascum nigrum* L. *Verbascum phoeniceum* L. *Verbascum phoeniceum* L. cv. ‘Violetta’ *Verbascum* cv. ‘Helen Jonson’ *Veronica gentianoides* Vahl *Veronica lindleyana* Paxton *Veronica orientalis* Mill. *Veronica peduncularis* cv. 'Georgia Blue' *Veronica prostrata* L. *Veronica speciosa* R. Cunn. ex A. Cunn. *Veronica speciosa* var. *rubra* hort. *Veronica schistosa* E. A. Busch *Veronica spicata* L. hort. *Veronica teucrium* L.
Solanaceae *Nicandra physaloides* (L.) Gaertn. ✽	**Solanaceae** *Browallia speciosa* Hook.

Solanum persicum Willd.	*Nicandra physaloides* (L.) Gaertn. *Petunia* ×hybrida
Thyphaceae *Typha latifolia* L. ✽	**Thyphaceae** *Typha latifolia* L. *Typha latifolia* L. 'Variegata' *Typha laxmannii* Lepech.
Valerianaceae *Centranthus longiflorus* Steven *Valeriana alliariifolia* Adams ✽ *Valeriana alpestris* Steven ✽ *Valeriana eriophylla* (Ledeb.) Utkin *Valeriana leucophaea* DC. *Valeriana officinalis* L. ✽	**Valerianaceae** *Centranthus ruber* (L.) DC. *Valeriana officinalis* L.
Violaceae *Viola alba* Besser ✽ *Viola ambiqua* Waldst. & Kit. ✽ *Viola canina* L. ✽ *Viola kitaibeliana* Schult. ✽ *Viola occulta* Lehm. ✽ *Viola odorata* L. ✽ *Viola purpurea* Steven *Viola suavis* M. Bieb. ✽	**Violaceae** *Viola cornuta* L. *Viola cucullata* Aiton *Viola hybrida* Schurhort. *Viola lutea* Huds. *Viola odorata* L. *Viola odorata* 'Alba' *Viola pedata* L. *Viola rotundifolia* Michx. *Viola tricolor* L.

Authors of photographs

J. Akopian: *Plump solonchaks in the vicinity of Yeraskhaun of Armavir province, Gypsiferous semidesert landscape of the Ararat valley, Relict salt marshes in the vicinity of Ararat town, Marl-clay slopes against the background of the inner gorge of Mount Yeranos; Acantholimon glumaceum, Acanthus dioscoridis, Actinolema macrolema, Adonis aestivalis, Adonis flammeus, Alcea rugosa, Allium cardiostemon, Allium scabriscapum, Althaea cannabina, Althea officinalis, Asparagus verticillatus, Aster amellus subsp. ibericus, Astragalus szovitsii, Astragalus takhtadzhianii, Bupleurum rotundifolium, Campanula rapunculoides, Campanula stevenii* subsp. *beauverdiana, Caroxylon dendroides, Centaurea cyaneus, Centaurea erivanensis, Centaurium pulchellum, Climacoptera crassa, Convolvulus lineatus, Corydalis angustifolia, Crocus adamii, Crocus speciosus, Dorycnium intermedium, Echinops orientalis, Eremurus spectabilis, Gagea commutata, Gagea tenuifolia, Geranium collinum, Hablitzia tamnoides, Hieracium cymosum, Hibiscus trionum, Hypericum elongatum, Hypericum perforatum, Inula aucheriana, Iris demetrii, Iris musulmanica, Iris reticulata, Lamium album, Lathyrus tuberosus, Limonium meyeri, Lotus caucasicus, Merendera sobolifera, Merendera trigyna, Muscari neglectim, Muscari szovitsianum, Muscari tenuiflorum, Onobrychis radiata, Onobrychis transcaucasica, Origanum vulgare, Ornithogalum montanum, Papaver roseolum, Peucedanum ruthenicum, Phlomis orientalis, Phlomis pungens, Primula veris* subsp. *macrocalyx, Salvia ceratophylla, Salvia nemorosa, Scutellaria orientalis, Sedum oppositifolium, Sphaerophysa salsula, Stachys inflata, Teucrium polium, Thalictrum minus, Trifolium*

pratense, Vicia grandiflora, Vicia narbonens, Vicia nissoliana, Viola alba, Viola ambiqua, Viola suavis, Xeranthemum squarrosum
A. Ghukasyan: *Goravan Sands Sanctuary landscape of the Ararat province; Althaea armeniaca, Coronilla varia, Erianthus ravennae, Geranium sanquineum, Hesperis matronalis, Iris elegantissima, Iris paradoxa, Irispumila, Papaver arenarium, Salvia hydrangea, Valeriana officinalis*
L. Martirosyan: *Agrimonia eupatoria, Amberboa moschata, Chenopodium foliosum, Euphorbia marshalliana, Mentha longifolia*
M. Aghababyan: *Dodartia orientalis*
R. Adamyan: *Geranium tuberosum*
S. Arevshatyan: *Valeriana leucophaea*
S. Banketov: *Alyssum trichostachyum, Viola kitaibeliana*
G. Fayvush: *Sagebrush semidesert landscape of the Ararat valley; Agropyron imbricatum, Anacamptis pyramidalis, Bryonia alba, Cephalanthera rubra, Cynosurus echinatus, Dryopteris filix-mas, Eremostachys laciniata, Glaucium corniculatum, Globularia trichosantha, Lythrum salicaria, Ophrys oestrifera* subsp. *oestrifera, Papaver commutatum, Prangos ferulaceae, Roemeria refracta, Thypha latifolia*
T. Galstyan: *Aethionema pulchellum, Alkanna orientalis, Arabis caucasica, Asplenium ruta-muravia, Astragalus massalskyi, Bellevalia glauca, Caccinia macranthera, Crambe orientalis surrounded by Consolida orientalis, Gentiana cruciata, Geranium sanquineum, Helichrysum rubicundum, Hypericum scabrum, Ixilirion tataricum, Lappula barbata, Moltkia coerulea, Nonea polychroma, Orchis purpurea, Platanthera chlorantha, Rindera lanata, Saturea macrantha, Sedum hispanicum, Stipa arabica, Tulipa biflora, Veronica orientalis, Viola occulta*
S. Mnatsakanyan: *Capparis spinosa, Echium vulgare*
A. Nersesyan: *Gypsophylla bicolor, Gypsophylla heteropoda, Silene italica, Muscari caucasicum*
M. Oganesian: *Allium materculae, Campanula sibirica* subsp. *hohenackeri*
N. Stepanyan: *Seidlitzia florida*

Index of Latin names of Plant Species

A

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CONTENTS