

Alliaceae in the flora of Egypt

1. Systematic revision of the indigenous species of *Allium* L.

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The indigenous taxa of *Allium* L. represented in the flora of Egypt were systematically revised. This revealed the presence of 20 species belonging to 4 sections. For each species, valid name, synonymes (if any), type, distribution (local and global) and representative specimens are given. A key for the separation of the species is provided.

Key words: Flora of Egypt, Alliaceae, *Allium* L.

Introduction:

Allium L. is the largest genus of petaloid monocotyledons (excluding orchids) with some 750 species (Stearn, 1992). There is a current tendency to retain the genus *Allium* and its allied genera in the Liliaceae, but some authorities include them in Amaryllidaceae, while others recognize these taxa as separate family, the Alliaceae.

The problem with the taxa of Alliaceae is that they resemble members of Amaryllidaceae in having an umbellate inflorescence, but have superior ovary as do Liliaceae. If the form of inflorescence is regarded as the most important character of the plant, they are classified in the former, but if the priority is given to possession of superior ovary, then they must be in the Liliaceae. The combination of these characters when taken into consideration justified the formation of Alliaceae (Mathew, 1978).

In our area, *Allium* was the subject of comprehensive studies, most important are those of Boissier (1882); Feinbrun (1943, 1948); Wendelbo (1971); Wilde-Duyfjes (1973, 1976); and Kollmann (1984, 1986). Recent treatments known to the writer are those of Mathew (1996) and Gregory *et al.* (1998).

Allium is the largest genus among the monocotyledons of Egypt. The most comprehensive treatment of its species during the last decades is that of Täckholm and Drar (1954); who reported the occurrence of 24 species. The same number was given by Täckholm (1974); which are reduced to 22 species by El Hadidi & Fayed (1994 / 95) and Boulos (1995).

The present study aims to update our earlier knowledge about the *Allium* species represented in the flora of Egypt. It is based on the revision of the materials kept in Egyptian Herbaria as well as intensive field studies. Phytogeographical subdivision for the representative specimens are those of El Hadidi (1993) Figure (1).

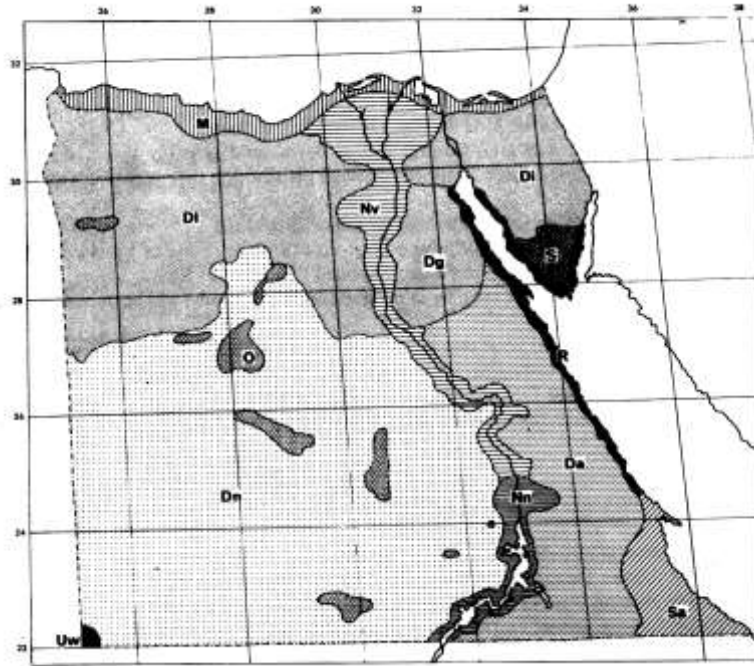


Fig. (1). Phytogeographical subdivisions of Egypt (after El Hadidi, 1980). (M) Mediterranean coastal belt, (DI) Libyan Desert, (Dn) Nubian Desert, (Di) Isthmic Desert, (Dg) Galala Desert, (Da) Arabian Desert, (Nv) Nile Valley sector of the Nile-land, (Nn) Nile nubian sector of the Nile land, (O) Oases of (DI) & (Dn), (S) Southern mountainous Sinai, (R) Red Sea coastal plains, (Sa) Gebel Elba district; (Uw) Gebel Uweinat area.

Systematic treatment.

Alliaceae J.G. Agardh, *Theoria Systematis Plantarum* :32 (1858).

Syns.: Liliaceae subfam. Allioideae Engl. in Engl. and Prantl, Nat. Pflanzenfam. 2,5: 18 (1887).

Amaryllidaceae tribus Allieae Hutch., Fam. Fl. Pl. 2:130 (1934).

Allium L., Sp. Pl. 1:294 (1753); Gen. Pl. ed. 5:143 (1754); E. Regel in Acta Hort. Petrop. 3:1-266 (1875); Stearn in Ann. Mus. Goulandris, 4:83-198 (1978).

Type: *A. sativum* (lectotype).

Syn.: *Porrum* Mill., Gard. Dict. Abridged 4th ed. (1754).

Type *A. porrum*

Allium L. is a large genus of about 750 species mainly distributed in the northern hemisphere. It is represented in Egypt by 20 species, two of which are endemic viz. *Allium mareoticum* Bornm & Gauba and *A. crameri* Asch. & Boiss.

The most important diagnostic characters are those of the inner 3-filaments which are either cuspidate or simple, leaves solid or hollow, structure of the tunic of the

bulb reticulate- fibrous or membranous coriaceous, anthers and filaments included or exerted, spathe valve one or 2-4, persistent or caducous, perianth colour white, greenish or pink and the hairness of the leaves and its sheathes is pilose or glabrous.

Synopsis of sections and species (arranged after Kollmann, 1984: 114).

Sect. Allium

1. *Allium ampeloprasum* L.
2. *A. sphaerocephalon* L.
3. *A. sinaiticum* Boiss.
4. *A. curtum* Boiss. & Gaill.
5. *A. barthianum* Asch. & Schweinf.
6. *A. artemisiatorum* Eig & Feinbr.
7. *A. mareoticum* Bornm. & Gauba

Sect. Codonoprasum

8. *A. decaisnei* C. Presl
9. *A. myrianthum* Boiss.
10. *A. pallens* L.
11. *A. desertorum* Forssk.

Sect. Molium

12. *A. blomfieldianum* Asch. & Schweinf.
13. *A. erdelii* Zucc.
14. *A. trifoliatum* Cirillo
15. *A. papillare* Boiss.
16. *A. roseum* L.
17. *A. neopolitanum* Cirillo

Sect. Melancrommyum

18. *A. crameri* Asch. & Boiss.
19. *A. aschersonianum* Barbey
20. *A. rothii* Zucc.

Täckholm & Drar (1954) and Täckholm (1974: 647-654), reported without certainty the presence of *Allium arvense* Guss., *A. spathaceum* Steud. ex A. Rich. and *A. tel-avivense* Eig. No specimens are available for this study. An *Allium* species was recorded in 1996 as an adventive plant in the lawns of gardens in Giza area. Specimens were sent to the Herbarium of the Royal Botanic Gardens, Kew (U.K.) for identification.

Key to the species

- 1.a. Filaments of inner whorl of stamens tricuspidate 2
 b. Filaments of all stamens either simple or bidentate at base 8
 2.a. Leaves non-fistulose, flattened or V-shaped, keeled **1. *A. ampeloprasum***
 b. Leaves fistulose (hollow) terete, or subterete (at least in the upper part); often channelled lowerdown 3
 3.a. Outer bulb tunic distinctly reticulate fibrous 4
 b. Outer bulb tunic membranous or coriaceous 6
 4.a. Anthers wholly included at anthesis 5
 b. Anthers wholly or partially exerted at anthesis **6. *A. artemisietorum***
 5.a. Stems 6-10 cm long; perianth segments 6-7mm long; leaves 2-2.5 mm wide **3. *A. sinaiticum***
 b. Stems c. 15 cm long, perianth segments up to 5 mm long; leaves 0.5-1 mm wide **5. *A. barthianum***
 6.a. Tall plant, bracteoles absent, spathe valve persistent; filaments ciliate or minutely dentate at base 7
 b. Short plant, bracteoles present, spathe valve caducous; filaments glabrous **7. *A. mareoticum***
 7.a. Umbel spherical or broadly ovoid; capsule 3.5-4mm long **2. *A. sphaerocephalon***
 b. Umbel ovoid-conical or ovoid-fastigiate capsule 2.5-3 mm long **4. *A. curtum***
 8.a. Leaves fistulose (hollow), terete or subterete, spathe valve as long as or longer than umbel 9
 b. Leaves non-fistulose, flattened, spathe valve shorter than umbel 12
 9.a. a. Anthers wholly included at anthesis **11. *A. desertorum***
 b. Anthers partially or wholly exerted at anthesis 10
 10.a. Plant up to 25 cm long, perianth yellowish-green or greenish-grey **8. *A. decaisnei***
 b. Plant up to 120 cm long, perianth milky white 11
 11.a. Outer tunic membranous, filaments and anthers exerted **9. *A. myrianthum***
 b. Outer tunic striate, filaments included anthers partially exerted **10. *A. pallens***
 12.a. a. Leaf sheathes with retrorsely adpressed hairs 13
 b. Leaf sheathes glabrous 14
 13.a. Perianth segments 6 mm long, obtuse, outer tunic coriaceous **15. *A. papillare***
 b. Perianth segments 9 mm long, acute, outer tunic membranous **14. *A. trifoliatum***
 14.a. Leaves flat, 2-5 cm wide 15
 b. Leaves narrow, up to 1.5 cm wide 17
 15.a. Stem 30-80 cm long, leaves shorter than stem 16
 b. Stem 10-25 cm long, leaves as long as or longer than stem **20. *A. rothii***
 16.a. Bulb with black tunic, leaves with horny fimbriated margin **18. *A. crameri***
 b. Bulb with white tunic, leaves with denticulate scarious margin **19. *A. aschersonianum***
 17.a. Stem trigonous (3 angled), spathe with one valve **17. *A. neopolitanum***
 b. Stem terete, spathe with 2-4 valves 18
 18.a. Perianth segments glossy, with 3 inner segments erect and the 3 outer spreading **12. *A. blomfieldianum***
 b. Perianth segments not glossy, all erect 19
 19.a. Leaves pilose, perianth straw coloured, segments narrow acute **13. *A. erdelii***
 Leaves glabrous, perianth pink with dark midveins, segments broad, obtuse **16. *A. roseum***

Enumeration of sections and species

Sect. *Allium*

Syns. : Sect. *Alliotypus* Dumort., Fl. Belg. : 140 (1827).

Sect. *Porrum*, G. Don ex Koch, syn. Fl. Germ.: 714 (1837); Täckh. & Drar, Fl. Eg. 3: 60 (1954).

Sect. *Crommyum* Webb & Berth. subsect. *Porrum* Boiss, Fl. Orient. 5: 229 (1882).

1. *Allium ampeloprasum* L., Sp. Pl. 1:294 (1753); Boiss., Fl. Orient., 5:232 (1882); Post, Fl. Syr. Pal. & Sinai 2:634 (1933); Täckh. & Drar, Fl. Eg. 3:64 (1954), Mouterde, Nouv. Fl. Lib. et syr. 1:263 (1966); Täckh., Stud. Fl. Eg. ed 2:684 (1974); Wilde-Duyfjes, Revis. *Allium* in Africa: 63 (1977), P.P. Kollman in Davis Fl. Turk. 8:163 (1984); Meikle, Fl. Cyperus 2:1617 (1985); Kollman in Feinbr. Fl. Palaest. 4: 88 (1986); Gregory *et al.*, Nomen. Alliorum: 6 (1998).

Type : England, Steep Holm Is., *Newton* (lectotype BM: Herb. Sloane 152, Foilio 153).

Habitat : In fields and former areas of cultivation.

Distribution: Mediterranean coastal land of Egypt. Widespread in S. & W. Europe, N. Africa, Canary Islands., Turkey, Cyperus, Syria, Lebanon, Palestine, Jordan, Saudia Arabia and Iraq.

Representative specimens :

M: Burg El Arab, Cultivated field, 6.4.1995, *El Garf* s.n. (CAI); Northern Sinai, in neglected field near the frontier 15.4.1997 *Gibali* 990 (CAI, CAIRC); in Barley field, 95 km. East of Sollum. 26.5.1963 *V. Täckholm et al.* s.n. (CAI).

2. *Allium sphaerocephalon* L., Sp. Pl. 1:297 (1753); Boiss., Fl. Orient. 5:236 (1882); Post, Fl. Syr. Pal. & Sinai 2:636 (1933); Täckh. & Drar Fl. Eg. 3:66 (1954); Täckh., Stud. Fl. Eg. ed. 2:648 (1974); Wilde-Duyfjes, Revis. *Allium* in Africa: 44(1976); Kollmann in Davis, Fl. Turk. 8:177 (1984); Meikle, Fl. Cyperus 2:1619 (1985); Gregory *et al.*, Nomen. Alliorum: 52 (1998).

Type: *Micheli's* specimen annotated 'Nov. Micheli Gen: Scorodoprasum fig.2 si constata' (lectotype FI). Designated by Wilde-Duyfjes in Taxon 22:88 (1973).

Habitat : Dry stony and rocky slopes, waste places and barley fields.

Distribution: Mediterranean coastal land of Egypt. Widespread in S. & W. Europe, N. Africa, Turkey, Cyperus, Palestine Jordan and Iraq.

Representative specimens :

M: Mariut, Abu Sir in sandy dunes, 30.5.1962 *V. Täckholm* s.n. (CAI); Amria, Mariut, 30.4.1970 *M. Imam* s.n. (CAI); Along the road, Burg El Arab – El Alamein, 1.6.1964, *V. Täckholm et al.* s.n. (CAI).

3. *Allium sinaiticum* Boiss., Diagn. Pl. Or. Nov. Ser. 1, 13:31 (1854); Fl. Orient. 5:244 (1882); Post, Fl. Syr. Pal. & Sinai 2:637 (1933); Täckh. & Drar, Fl. Eg. 3:67 (1954); Täckh., Stud. Fl. Eg. ed. 2:684 (1974). Kollmann in Feinbr., Fl. Palaest. 4:94 (1986); Gregory *et al.*, Nomen. Alliorum: 51 (1998).

Type : Egypt, in locis elatis deserti Sinaitici inter conventum et Jugum Tih, April 1846; *Boissier* (holotype, G).

Habitat: In deep sand of semideserts

Distribution : Sinai, Isthmic Desert. Known from Palestine, SW. Jordan, NW. Saudi Arabia.

Representative specimens :

Di: In deserto Arabiae petreae inter jugum Sinaiticum et Nuckl, *Boissier*.

S: Wadi. el "Humur" Hommur at El-Ramla Plain, *Shabetai*. (CAIM).

4. *Allium curtum*: Boiss. & Gaill. ex Boiss., Diagn. Pl. Or. Nov. Ser. 2, 4:116 (1859); Fl. Orient. 5:245 (1882); Post, Fl. Syr. Pal. & Sinai, 2:638 (1933); Täckh. & Drar, Fl. Eg. 3:68 (1954); Mouterde, Nouv. Fl. Lib. et Syr. 1:269 (1966); Täckh., Stud. Fl. Eg. ed. 2:650 (1974); Kollmann in Davis, Fl. Turk. 8:179 (1984); Meikle, Fl. Cyperus. 2:1621 (1985); Kollmann in Feinbr., Fl. Palaest. 4:92 (1986) Gregory *et al.*, Nomen Alliorum: 16 (1998).

Type : Lebanon, in arenosis ultra abarouh in vicinis Sidonis Syriae; *Gaillardot* (holotype G, isotype P).

Syns.: *Allium sphaerocephalon* subsp. *curtum* (Boiss. & Gaill.) Wilde-Duyfjes, Revis. *Allium* in Africa : 52 (1976).

Allium curtum subsp. *aegyptiacum* Täckh. & Drar, Fl. Eg. 3:69 (1954).

Type : Um Zegheiw, near Dikheila, *Drar* (holotype CAIM).

Habitat: Sandy seashores and sandy fields.

Distribution : Mediterranean coastal land of Egypt. Known from Palestine, Syria, Lebanon, Cyperus, S. Turkey.

Representative specimens :

M: In sandy fig plantations between Abu sir & Amria along the sea side road, 19.5 1958, *V. Täckholm* s.n. (CAI); Rafah, spring 1965, *Salah Eid* s.n. (CAI).

5. *Allium barthianum* Asch. & Schweinf. In Bull. Berb. Boiss. 1,9:670 (1893); Pamp., Prodr. Fl. Cir.: 152 (1931) Täckh. & Drar, Fl. Eg. 3:69 (1954) Maire, Fl. De L'Afr. Du Nord 5:267 (1958); Täckh., Stud. Fl. Eg. ed. 2:650 (1974); El-Gadi in Jafri & El-Gadi, Fl. of Libya 33:15 (1977); Gregory *et al.*, Nomen. Alliorum: 10 (1998).

Type : Libya, Cyrenaica, Badia, *Schweinfurth* 114 (lectotype, G).

Habitat : dry rocky and gravelly places at low altitudes.

Distribution : Mediterranean coastal land in Egypt. Mainly known from Libya.

Representative specimens :

M: Sidi Barrani, 1965, *Kamal Mustafa* 240 (CAI); Mersa Matruh area, 22.3.1975, V. Täckholm *et al* s.n. (CAI).

6. *Allium artemisietorum* Eig. & Feinbr. in Pal. Journ. Bot. Ser. 3:18 (1943); Täckh. & Drar, Fl. Eg. 3:70 (1954); Mouterde, Nouv. Fl. Lib. et Syr. 1:271 (1966); Täckh., Stud. Fl. Eg. ed. 2:650 (1974); Kollmann in Feinbr., Fl. Palaest. 4:94 (1986). Gregory *et al.*, Nomen. Alliorum: 8 (1998).

Type : Palestine, N. Negev, about 10 Km E. of Beer-Sheba, Eocene hills, 29 May 1942, N. Feinbrun (holotype, HUI).

Habitat: Steppe & Rocky places, desert, c. 300m.

Distribution: Isthmic Desert of Egypt. Recorded in Palestine, Jordan and Saudi Arabia.

Representative specimens :

Di: Gebel El Halal, April 1964, *Salah Eid* s.n. (CAI); A branch of Wadi El-Mizeiris, Near G. El-Maghara, *Boulos* s.n. (CAI).

7. *Allium mareoticum* Bornm. & Gauba in Fedd. Repert. Sp. Nov. 31:396 (1933); Täckh. & Drar Fl. Eg. 3:70 (1954); Täckh., Stud. Fl. Eg. ed. 2:650 (1974); Gregory *et al.*, Nomen. Alliorum: 33 (1998).

Type : Egypt, in Aegypti inferioris territorio Marmarica ad El-Omaied, 23 March 1930 (fl.), 23 July 1930 (fr.) *Gauba* (holotype TEH?).

Habitat : Sandy and rocky places on calcareous hills.

Distribution : Mediterranean coastal land of Egypt (endemic).

Representative specimens :

M: El Dabaa; *Drar* s.n. (CAIM); El Hammam, Eid El Imaiyid, in Sand, *Drar* s.n. (CAIM).

Sect. *Codonoprasum* Reichenb. In Mössler Handb. ed. 2, 1:588 (1827); Täckh. & Drar, Fl. Eg. 3:60 (1954).

Syns.: Sect. *Crommyum* Webb & Berth. subsect. *Haplostemon* Boiss. series *Codonoprasa* Boiss., Fl. Orient. 5:254 (1882).

Sect. Haplostemon (Boiss.) Halàscy, Consp. Fl. Graec. 3:240 (1904).

8. *Allium decaisnei* C. Presl, Bot. Bemerk. :114 (1844); Gregory *et al.*, Nomen Alliorum: 16 (1998).

Syns.: *Allium stamineum* Boiss. subsp. *decaisnei* (C. Presl) Kollmann in Feinbr., Fl. Palaest. 4:87 (1986).

Allium stamineum Boiss., sensu Täckh. & Drar Fl. Eg. 3:71 (1954); Täckh. Stud. Fl. Eg. ed. 2: (1974).

Type : Southern Sinai, near Tor, *Bové* 69.

Habitat : Rocks & rock – crevices of high mountains.

Distribution : Endemic to Palestine & Sinai .

Representative specimen :

S: Summit of Gebel Katherina, *Schimper* 258.

Note : Täckholm & Drar (1954) & Täckholm (1974) reported the presence of *Allium stamineum* Boiss. from Egypt based on Schimper's collections from summit of Gebel. Kathrina (Sinai). Kollmann (1986: 87) stated that, Schimper's collection of *Allium* from this locality is *Allium decaisnei* which is habitually similar to *Allium stamineum* Boiss. It differs in several morphological & eco-geographical traits: (a) Morphology of spathe valve in young partly open umbel (b) Colour of perianth (c) Length of filaments related to perianth. (d) Habitat & area of distribution.

9. *Allium myrianthum* Boiss., Diagn. Pl. Or. Nov. Ser. 1, 5:59 (1844); Fl. Orient., 5:257 (1882); Täckh. & Drar, Fl. Eg. 3:71 (1954); Täckh., Stud. Fl. Eg. ed. 2:650 (1974); Kollmann in Davis, Fl. Turk. 8:160 (1984); Gregory *et al.*, Nomen. Alliorum: 36 (1998).

Type : In humidis ad rupas thermarum Hierapolis (pamukkale) in paludosis aestate exsiccatis inter junos in valle Meandri prope Nozlibzar, vi 1842, *Boissier* (holotype, G).

Habitat : In calcareous soil.

Distribution : Mediterranean coastal land of Egypt. Also known from Syria, Lebanon, Iraq, N. Iran, Cyrenaica and Turkey.

Representative specimens :

M: Mariut, spring 1965, *Salah Eid* s.n. (CAI); Abu Sir, 19.5.1958, *V. Täckholm* s.n. (CAI).

10. *Allium pallens* L., Sp. Pl. ed. 2:427 (1762); Wilde-Duyfjes, Taxon 22:74 (1973), Kollmann in Feinbr., Fl. Palaest., 4:84 (1986), Gregory *et al.*, Nomen. Alliorum: 39 (1998).

Type : Specimen no. 139.9 (LINN, lectotype).

Designated by Wilde-Duyfjes in Taxon 22:74 (1973).

Syns. : *Allium paniculatum* L. var. *pallens* (L.) Gern. & Gord., Fl. Fr. 3:209 (1855); Boiss., Fl. Orient 5:260 (1882); Post, Fl. Syr. Pal.& Sinai 2:640 (1933); Meikle, Fl. Cyperus, 2:1615 (1985).

Allium coppoleri Tineo, Cat. Pl. Horti Panorm.: 275 (1827); Täckh.& Drar, Fl. Eg. 3:72 (1954). Täckh., Stud. Fl. Eg. ed. 2:652 (1974).

Allium stamineum Boiss. var. *nigro-pedunculatum* Opphr., Florula Transjord. 158, Bull. Soc. Bot. Genève Ser. 2, 22:277 (1931).

Habitat : Barley fields, uncultivated sandy and stony ground.

Distribution : Barley fields and calcareous ground of the Mediterranean coastal land of Egypt. Known from, S. Europe, Turkey, W. Syria..

Representative specimens :

M: Ikingi Mariut, 20.5.1907, *Maire* s.n. (CAI); Abu Sir, in sand dunes 30.5.1962, *V. Täckholm* s.n. (CAI).

11. *Allium desertorum* Forssk., Fl. Aeg. – Arab.: 72 (1775); Boiss. Fl. Orient. 5:267 (1882); Post, Fl. Syr. Pal. & Sinai, 2:641 (1933); Täckh.& Drar, Fl. Eg. 3:74 (1954); Täckh., Stud. Fl. Eg. ed. 2:652 (1974); Kollmann in Feinbr. Fl. Palaest., 4:85 (1986); Gregory *et al.*, Nomen. Alliorum : 18 (1998).

Type: Egypt, In desertis Kahirinis, *Forsskal* 1762 (holotype, C).

Syn.: *Allium modestum* Boiss. Diagn. Pl. Or. Nov. Ser. 1, 13:33 (1854); Fl. Orient., 5:261 (1882); Post, Fl. Syr. Pal. & Sinai, 2:640 (1933); Täckholm & Drar, Fl. Eg. 3:73 (1954); Täckholm, Stud. Fl. Eg. ed. 2:652 (1974).

Habitat : Sandy and stony ground.

Distribution: Mediterranean coastal land and Galala Desert of Egypt. Known from Palestine.

Representative specimens :

M: Coteaux Kingi Mariout, 15.5.1907 *Maire* s.n. (CAI); Suez desert road, 4.4.1957, *Imam* s.n. (CAI).

Sect. *Molium* G. Don ex Koch, Syn. Fl. Germ.: 714 (1837); Täckh.& Drar, Fl. Eg.3:61 (1954).

Syns.: Sect. *Corommyum* Webb & Berth. subsect. *Haplostemon* Boiss. series *Molia* Boiss., Fl. Orient. 5:231 (1882) pro. part.

Subgen. *Molium* (Koch) Wendelbo, Bot. Not. 122:26 (1969); Fl. Iran. 76:64 (1971) pro. part.

12. *Allium blomfieldianum* Asch. & Schweinf., in Bull. Herb. Boiss. I: 671 (1893); Täckh.& Drar, Fl. Eg. 3:75 (1954); Täckh., Stud. Fl. Eg. ed. 2:652 (1974). Gregory *et al.*, Nomen. Alliorum: 10 (1998).

Type : not designated.

Habitat : In sandy soil and rocky ground.

Distribution : Sandy shores of the Mediterranean coastal land of Egypt. Known from Libya.

Representative specimens :

M: El-Sidra, 18 Km. W. of Mersa Matruh to the right of Sidi Barrani Road, 22.5.1958, V. *Täckholm* s.n. (CAI), along the way near Mersa Matruh, 9.3.1969, V. *Täckholm* s.n. (CAI).

13. *Allium erdelii* Zucc., Abh. Akad. Wiss. (München) 3:236 t.5 (1843); Boiss., Fl. Orient. 5:269 (1882); Post, Fl. Syr. Pal. & Sinai, 2:642 (1933); Täckh.& Drar, Fl. Eg. 3:76 (1954); Täckh., Stud. Fl. Eg. ed. 2: 652 (1974); Kollmann in Feinbr., Fl. Palaest. 4:80 (1986); Gregory *et al.*, Nomen. Alliorum: 19 (1998).

Type : Described from Palestine.

Syn.: *Allium erdelii* Zucc. var. *roseum* Boiss., Fl. Orient. 5:270 (1882).

Allium Philistaeum Boiss., Diagn. Pl. Or. Nov. Ser. 1, 13:26 (1854).

Habitat : Barley fields, coastal plains and stony ground.

Distribution : Cultivated fields and waste ground along the Mediterranean coastal land of Egypt. Known from Libya, Palestine and Syria.

Representative specimens :

M: Mariut, Burg El-Arab 20.3.1930 *Hassib* s.n. (CAI) Mariut, spring 1965 *Salah Eid* s.n. (CAI).

14. *Allium trifoliatum* Cirillo, Pl. Rar. Neap. 2:11 t.3 (1792); Boiss., Fl. Orient. 5:270 (1882) pro. part. Post, Fl. Syr. Pal. & Sinai 2:642 (1933); Kollmann in Davis, Fl. Turk. 8:119 (1984); Meikle, Fl. Cyperus 2:1610 (1985); Kollmann, in Feinbr., Fl. Palaest. 4:79 (1986); Gregory *et al.*, Nomen. Alliorum: 58.(1998).

Type : The illustration by Cirillo, Pl. Rar. Neap. 2:t.3 (1792).

Syn.: *Allium hirstum* Zucc., Abh. Akad. Wiss. (München) 3:232 t.2.f.2 (1843); Boiss., Fl. Orient. 5:271 (1882); Post, Fl. Syr. Pal. & Sinai 2:643 (1933); Täckh.& Drar, Fl. Eg. 3:75 (1954); Täckh., Stud. Fl. Eg. ed. 2:652 (1974) Gregory *et al.*, Nomen. Alliorum: 25 (1998).

Habitat : Rocky hillsides.

Distribution : Waste ground along the Mediterranean coastal land of Egypt. Known from S. Europe, Turkey and Palestine.

Representative specimen :

M: El- Amriya, 15march 1908; *Maire* s.n. (CAI).

15. *Allium papillare* Boiss., Diagn. Pl. Or. Nov. Ser. 1, 13:27 (1854); Boiss., Fl. Orient., 5:271 (1882); Post, Fl. Syr. Pal. & Sinai 2:643 (1933); Täckh.& Drar, Fl. Eg. 3:77 (1954); Täckh., Stud. Fl. Eg. ed. 2:652 (1974); Wilde Duyfjes, Revis. Allium in Africa : 147 f. 27 (1976); Kollmann in Feinbr. Fl. Palaest. 4: 80 (1986); Gregory *et al.*, Nomen. Alliorum: 40.(1998).

Type : In deserto Palestinae ad meridiem Gaza, *Boissier* (holotype, G).

Habitat : Sandy plains.

Distribution : Coastal plains of Sinai. Known from. Palestine.

Representative specimens :

M: 2km along the road to EL- Fayrouz, EL- Arish-Rafah road, 1.4.1987, *Gibali* 262 (CAIRC) ; Rafah, 19.3.1928 *Shabetai* s.n. (CAIM). Sinai, Rafah, near the station, 22.3.1928, *G. Täckholm* s.n. (CAI).

Note: The growth of this species is positively enhanced by ploughing in the dry Land. It is a weed in barley field cultivation conspicuously observed between El-Sheikh Zowayed and Rafah (Gibali, 1988: 249).

16. *Allium roseum* L., Sp. Pl. : 296 (1753); Boiss., Fl. Orient., 5:273 (1882); Täckh.& Drar, Fl. Eg. 3:78 (1954); Täckh., Stud. Fl. Eg. ed. 2:754 (1974), Wilde-Duyfjes, Revis. Allium in Africa : 169, t. 32 (1976); Kollmann in Davis, Fl. Turk. 8:123 (1984); Meikle, Fl. Cyperus 2:1612 (1985), Kollmann in Feinbr., Fl. Palaest. 4:82 (1986); Gregory *et al.*, Nomen. Alliorum: 45 (1998).

Type: Specimen no. 419/10 (LINN, lectotype).

Syns.: *Allium reseum* L. var. *tourneuxii* Boiss., Fl. Orient. 5:274 (1882).

Habitat, Barley fields, sand plains and rocky ground.

Distribution : Mediterranean coastal land of Egypt. Known from N. Africa, S. Europe, Turkey, Cyperus and Palestine.

Representative specimens :

M: Mersa Matruh area, 22.3.1975, *V. Täckholm et al.* s.n. (CAI); El-Omaid, Burg El-Arab, 8.3.1978; *Merxmüller et al.* s.n. (CAI).

17- *Allium neapolitanum* Cirillo, Pl. Rar. Neap. 1:13, t.4 (1788); Boiss., Fl. Orient. 5:274 (1882); Post, Fl. Syr. Pal. & Sinai, 2:644 (1933); Täckh.& Drar, Fl. Eg. 3:79 (1954);

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Täckh., Stud. Fl. Eg. ed. 2:654 (1974); Wilde-Duyfjes, Revis. *Allium* in Africa 23,t.30 (1976); Kollmann in Davis, Fl. Turk. 8:121 (1954); Meikle, Fl. Cyperus 2:1609 (1985); Kollmann in Feinbr., Fl. Palaest. 4:78 (1986); Gregory *et al.*, Nomen. Alliorum : 36 (1998).

Type : Italy' Colitur in Hortis Neapolitanis, ob florem pluchirtudinem & modo in apicis circa urbem sponte crescere inspit (?NAP).

Syn. : *Allium neapolitanum* Cirillo var. *angustifolium* Täckh. & Drar, Fl. Eg. 3:80 (1954).

Habitat : In sandy soil and stony ground.

Distribution: Sand plains along the Mediterranean coastal land of Egypt. Known from Palestine, Syria, Lebanon, Cyperus, S. Europe and Turkey.

Representative specimens :

M: El-Sollum, *Salah Eid* 80 (CAI); Rafah, 7.3.1927 *Drar* s.n. (CAIM).

Sect. Melanocrommyum Webb & Berth., Hist. Nat. Iles Canaries Bot. 3:347 (1848); Boiss., Fl. Orient. 5:229 (1882); Täckh.& Drar, Fl. Eg. 3:61 (1954).

Syn. : Subgen. *Melanocrommyum* (Webb & Berth.) Wendelbo, Bot. Not. 122:27 (1969); Fl. Iran. 76:67 (1971) p.p.

18- *Allium crameri* Asch. & Boiss. ex Boiss., Fl. Orient. 5:279 (1882); Post, Fl. Syr. Pal. & Sinai, 2: 645 (1933); Täckh.& Drar, Fl. Eg. 3: 81 (1954); Täckh., Stud. Fl. Eg. ed. 2: 654(1974); Gregory *et al.*, Nomen. Alliorum: 16 (1998).

Type: In desertis kahirinis prope sylvam petrefactam, *E. Cramer*.

Habitat: Rocky solpes and wadi beds.

Distribution: Egypt (endemic).

Representative specimen:

Dg: Wadi Digla, Maadi, near great petrified forest, 14.5.1965, *Vivan Holmén* s.n. (CAI).

19- *Allium aschersonianum* Barbey in C. & W. Barbey, Herb. Levant 163, t.4 (1882); Boiss., Fl. Orient. 5:283 (1882); Post, Fl. Syr. Pal. & Sinai 2:646 (1933); Täckh.& Drar, Fl. Eg. 3:81 (1954); Täckh., Stud. Fl. Eg. ed. 2:654 (1974); Kollmann in Davis, Fl. Turk. 8:205 (1984); Kollmann in Feinbr., Fl. Palaest. 4:96 (1986); Gregory *et al.*, Nomen. Alliorum: 9 (1998).

Type: Egypt, Mariut, 4 iii 1882, *Barbey* 887 bis (syntype, G).

Habitat: Barley fields, colcareous and sandy soils.

Distribution: Rocky land along Mediterranean coastal land of Egypt. Known from Cyrenaica, Palestine, Turkey and Syria

Representative specimens:

M: Urginea stand, 104-105 km west of Mersa Matruh, 31.4.1972, V. Täckholm *et al.* s.n. (CAI); Burg El-Arab, near Bramly's House, 14-17 March 1958 V.Täckholm s.n. (CAI).

20. *Allium rothii* Zucc., Abh. Akad. Wiss. (München) 3:235, t.4 (1843); Boiss., Fl. Orient. 5:283 (1882); Post, Fl. Syr., Pal. & Sinai. 2:646 (1933); Täckh.& Drar, Fl. Eg. 3:82 (1954); Täckh.Stud. Fl. Eg. ed. 2:654 (1974); Kollmann in Feinbr., Fl. Palaest. 4:98 (1986); Gregory *et al.*, Nomen. Alliorum: 46 (1998).

Type: In Palestina australi prope Hebron et in deserto Judo, Roth 424

Habitat: Sandy plains.

Distribution. Isthmic desert of Egypt. Known from Palestine, Syria and Lebanon.

Representative specimen:

Di: Wadi. Abiad in El Tih desert, Post.

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