

STUDIES ON THE VIOLACEAE FAMILY IN IRAN

(Dedicated to prof. Dr. E. Esfandiari on the occasion of his 80th birthday).

M. Khatamsaz

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The plant family *Violaceae* in Iran has been revised. A key to the species, nomenclature, selected specimens and necessary notes for the taxa are presented. Altogether 19 species are known from Iran. *Viola spathulata* var. *delirensis* is described as new. *V. elatior* and *V. hirta* are new records from Iran. *V. cinerea* var. *bornmulleri* = *V. cinerea* and *V. makranica* = *V. behboudiana* are new synonymes.

Mahboubeh Khatamsaz, Research Institute of Forests and Rangelands, P. O. Box 13185-116, Tehran, Iran.

مطالعاتی روی خانواده گل بنفشه (*Violaceae*) در ایران
از: محبوبه خاتم‌ساز

مروری از خانواده گل‌بنفشه (*Violaceae*) در ایران ارائه می‌شود که شامل کلید شناسایی گونه‌ها، اصول نامگذاری، نمونه‌های انتخابی و توضیحات ضروری است. مجموعاً ۱۹ گونه از این خانواده در ایران شناسایی شده است. واریته جدید *Viola spathulata* var. *delirensis* نامگذاری و شرح داده می‌شود.

دو گونه *V. elatior* و *V. hirta* برای اولین بار از ایران گزارش داده می‌شوند. واریته *V. cinerea* var. *bornmulleri* در گونه *V. cinerea* ادغام و گونه *V. makranica* مترادف گونه *V. behboudiana* شناخته می‌شود.

Introduction

The plant family *Violaceae* in Iran was revised in a project "preparation of Flora of Iran in Farsi". Here a translation of important parts including, key to the species, nomenclature, selected specimens and necessary notes are presented.

Violaceae

Boisser, E. Fl. Or 1: 450(1867); Becker, W. *Violae* des Herbarium Barbey-Boissier, Bul. Herb Boiss. 2 ser II: 852 (1902); Becker, W. *Violaceae* Asiaticae et Australienses, Beih. Bot. Centr. 34(2):208-266, 373-433 (1917); *ibid.* 36(2): 15-59 (1918); *ibid.* 40 (2): 20-171 (1924); Yuzepchuk, S. V. in Shishkin (ed.) Flora of the U.S.S.R. vol. 15:350(1949); Parsa, A. Flore de l'Iran 1:956(1951); Coode, M.J. & Cullen, J. in Davis, P.H. (ed.) Flora of Turkey 1:524(1965); Valentine, D.H. & Merxmüller, H. in Tutin, T.G. & Heywood, V.H. (eds.) Flora Europea vol. 2:270(1967); Meikle, R.D. in Townsend, C.C. & Evan Guest (eds.) Flora of Iraq vol. 4:172(1980); Zohary, M. & al. Conspectus Florae Orientalis, Fascicle 2:63(1983); Qaiser, M. & Saood Omer in Nasir, E. & Ali, S.I. (eds.) Flora of Pakistan No. 166 (1985); Ghahreman, A. Flore de l'Iran en couleur naturell. (1978-1989).

The genus *Viola* is the only representative of the *Violaceae* family in Iran. It includes 19 species in Iran. They are more often distributed in N. & NW., but also some occur in W. & S. Iran.

Key to the species

1. Flowers violet, blue or white, never yellow; lateral petals spreading horizontally; style hooked; stipules entire to fimbriate, never lobed; plants with cleistogamous flowers in late spring and summer. (Sect. *Viola*) 2
- + Flowers yellow or of mixed colours, often with a yellow centre; lateral petals directed towards the top of the flowers; style expanded into a globose head; stipules pinnatifid, palmatifid or entire; cleistogamous flowers absent. (Sect. *Melanium*) 16
2. Leaves ovate-orbicular or cordate, cordate at the base. 3
- + Leaves ovate to spatulate, cuneate at the base. 12
3. Plants acaulescent, leaves all radical. 4
- + Plants caulescent, flowers axillary. 9
4. Stolons present. 5
- + Stolons absent. 8
5. Stolons underground; flowers light violet with a white centre. 3. *V. suavis*
- + Stolons above the ground; flowers

- blue or violet or all white. 6
6. Stipules with numerous, long, eglandular fimbriae, leaves acute, stolons not rooting. 4. *V. alba*
- + Stipules entire, or with few glandular fimbriae; leaves obtuse, stolons rooting at the ends. 7
7. Sepals not ciliate; leaves \pm thick and dark green; petioles glabrous. 1. *V. odorata*
- + Sepals ciliate; leaves herbaceous and light green; petioles hairy. 2. *V. ignobilis*
8. Stipules with long fimbriae; flowers fragrant, white or light violet; peduncles with bracteoles at or mostly above the middle; leaves crenate at margin 4. *V. alba*
- + Stipules with short fimbriae; flowers not scented, dark violet; peduncles with bracteoles below the middle; leaves sharply dentate at margin. 5. *V. hirta*
9. Plant lacking basal leaf-rosette, leaves usually longer than wide. 9. *V. elatior*
- + Plant with basal leaf-rosette; leaves usually about as long as wide. 10
10. Plant small, up to 10cm., flowers not more than c.1.5. cm; peduncles and capsule villous. 6. *V. rupestris*
- + Plants, taller than 10 cm; flowers more than c. 1.5 cm; peduncles and capsule glabrous or pubescent. 11
11. Flowers lilac, spur dark purple; petals narrow; peduncles with bracteoles at the middle. 7. *V. reichenbachiana*
- + Flowers white or bluish white, spur pale, petals broad, overlapping; peduncles with bracteoles above the middle. 8. *V. sieheana*
12. Plants perennial, acaulescent, leaves and flowers all radical; leaves spatulate to ovate-elliptic; stipules shortly adnate to petiole. 13
- + Plants annual or sometimes perennial, caulescent; leaves obovate; stipules small and free from the petiole. 14
13. Not cushion-forming plant, not woody at base, leaves spatulate; sepals strigose. 10. *V. spathulata*
- + Cushion-forming plants, woody at base, leaves ovate-elliptic; sepals glabrous. 11. *V. pachyrrhiza*
14. Leaves, stem and capsule glabrous. 14. *V. stocksii*
- + Leaves, stem and capsule pubescent. 15
15. Plant ashy grey; perennial; stipules acuminate. 12. *V. cinerea*
- + Plant green; annual; stipules acute. 13. *V. behboudiana*
16. Peduncle distinctly bibracteolate. 17
- + Peduncle ebracteolate, or with minute bracteoles closely adpressed to the calyx. 19
17. Petals exceeding the sepals; flowers

- more than c. 1.5 cm, mostly mixed colours. 15. *V. tricolor*
- + Petals equalling or shorter than sepals; flowers not more than c. 1.5 cm, yellow. 18
18. Plant to 40 cm high; stipules 2 to 5 cm, the middle segment large and leaf-like. 16. *V. arvensis*
- + Plant 2 to 15 cm high; stipules up to 0.5–1 cm, the middle segment not leaflike. 17. *V. kitaibeliana*
19. Sepals ovate, equalling or exceeding petals, sepal appendages exceeding the petal spur; flowers mostly yellow. 18. *V. occulta*
- + Sepals triangular-lanceolate, shorter than petals; petal spur exceeding the sepal appendages; flowers mostly mixed colours. 19. *V. modesta*
1. *V. odorata* L., Sp. Pl. 934(1753).
Syn. *V. wiedemannii* Boiss., Fl. Or. 1: 457(1867).
Selected specimens:
Gorgan. Shahrud pass, NE of Khosh-Yeilagh, 1550 m, Wendelbo & al. 11130; ca. 15 km. S. of Moraveh Tappeh, Gonbad pass, 1000m, Hewer 36060. — Mazandaran: Nowshahr, Khaeyrudkenar forest, 400m, Assadi 3396; S. of Ghasemabad, W. Ramsar, 3396; S. of Ghasemabad, W. Ramsar, 100–200m, Wendelbo & Shirdelpour 15272; near Andarvar, ca. 20 km. E. Nowshahr, 150m, Wendelbo & Shirdelpour 15258; Haraz pass, S. Kareh-Sang, 400 m, Wendelbo & Shirdelpour 15226; Nowshahr, Maadan, Iran-shahr 14074-E; S. of Chalous, Termeh 13695E; Shirgah, Mansouri 243. — Gilan; Asalem-Khalkhal pass, 200m, Wendelbo & Maassoumi 19088; Rasht-Lahijan pass, Rostamabad, Ghahreman & Agustin 41. — Azarbayejan: SW. Urumiya, Silvana, S. mont. Dizeh, 1750 m, Runemark & Foroughi 19716; W. Urumiya, Targevar, 1700–2000m, Runemark & Foroughi 19749.
Intermediates between *V. alba* and this taxon occur.
2. *V. ignobilis* Rupr., Mem. Acad. Sci. Petersb. Ser. 7, 15(2): 148 (1869).
Selected specimens:
Mazandaran: Chalus valley, Siah Bisheh, 2420 m, Foroughi 188, 391; Firoozkuh pass, Pol-e Veresk, 1730 m, Foroughi 1231; Kelardasht, Rudbarak, 1530 m, Termeh & al. 37716-E. — Azarbayejan: Ahar-Tabriz pass, 20 km. SW. of Ahar, 1700m, Wendelbo & Assadi 19296; Arasbaran protected area, S. mont. of Kharil, 2000–2500 m, Assadi & Maassoumi 20269. — Semnan: Kuh-e Ghatri, Kuh-e Abr, N. of Shahrud, 2200 m, Wendelbo & Foroughi 11150. — Tehran:

Rudak, Shemshak pass, 1900 m, Riazi 8921.

3. *V. Suavis* Bieb. Fl. Taur. - Cauc. 3: 164(1819).

Syn.: *V. odorata* L. var. *suavis* (Bieb.) Boiss. Fl. Or. 1: 458(1867); *V. pontica* Becker in Beih. Bot. Centr. 36(2): 18 (1918).

Selected specimens:

Mazandaran: Kelardasht, Takhteh Solyman mont., 3500 m, Fotovat 10167; S. of Chalus, Vissar, 1600 m, Mozaffarian 27358; Nowshahr, S. of Khaeyud-Kenar, 75m, Wendelbo & Shirdelpour 15264; Sangdeh, 30 km. SE. of Pole Sefid, 2500 m. Renz & Iranshahr 16814. -E. — Gilan: Ardabil to Astara pass, E. of Gardaneh Heyran, 700 m, Wendelbo & Maassoumi 19120; Assalem to Khalkhal, 1900 m, Wendelbo & Assadi 27794. — Tehran: Darband, Pasghaleh, 1400 m, Rechinger 2607.

4. *V. alba* Besser, Primit. Fl. Galic. 1: 171(1809).

Syn.: *V. armena* Boiss. & Huet in Boiss., Diagn. ser. 2(5): 48(1856); *V. thessala* sensu Bornmuller, J. 1905, Bull. Heb. Boiss. 2 Ser. 5(11): 42 non Boiss. & Sprun.; *V. alba* subsp. *sintenisii* Becker

in Beih. Bot. Centr. 36(2): 21(1918); *V. sintenisii* sensu Bornm., Feddes Rep. Beih. 89(1): 87(1936).

Selected specimens:

Mazandaran: E. of Nowshahr, Khaeyrud-Kenar forest, 75 m, Wendelbo & Shirdelpour 15275; S. of Ghassemabad, W. of Ramsar, 100–200 m, Wendelbo & Shirdelpour 15275; S. of Ramsar Darreh Neydasht, 680 m, Wendelbo & Maassoumi 19158: km. 88 on Damghan-Sari pass, 1650 m, Wendelbo & Assadi 29536; Chalus, 3 km to Vissar, 1400 m, Mozaffarian 27375. — Gilan: Assalem to Khalkhal, 200 m, Wendelbo & Maassoumi 19091.

5. *V. hirta* L., Sp. Pl. ed. I(1753)934; Ging. in DC. Prodr. I(1824) 295.

Selected specimens:

Mazandaran: Siah Bisheh, 2550 m, Mozaffarian 27398. — Semnan: Kuh-e Ghatri, N. of Shahrud, 2500 m, Wendelbo & al. 11169. — Tehran: W. of Tehran, Chitgar, 1320 m, Riazi 8715.

New to Iran.

6. *V. rupestris* F. W. Schmidt, Abh. Bohm. Ges. Wiss. Ser. 2,1:60 (1791).

Syn.: *V. arenaria* DC., Prodr. 1: 269 (1824).

Selected specimens:

Mazandaran: Neydasht, 1000m, Sabeti 8709; Chalus pass, 2 km to Siah Bisheh, 2450m, Runemark & Mozaffarian 28076; ca. 50 km SW. of Chalus, above Dalir, 2800 m, Assadi & Maassoumi 51593; Ramsar, 4 km. SW. Javaherdeh, 2500 m, Runemark & Maassoumi 20871. — Azarbajejan: Assalem to Khalkhal, Gardaneh Almass, 2350–2400 m, Wendelbo & Assadi 18509; Kaleibar to Makidi, 1300–1700 m, Wendelbo & Assadi 16977; ca. 20 km to Khalkhal, Kerman mont. 2000–2200 m, Termeh & Matine 36501-E.

7. *V. reichenbachiana* Jord ex Bor., Fl. Centr. France, ed. 3,2: 78(1857).

Syn.: *V. sylvestris* Lam. Fl. Fr. 2: 680 (1778) pro parte.

Selected specimens:

Khorassan: 33 km. Moraveh Tappeh to Ashkhaneh, 1350 m, Assadi & Maassoumi 55607.

This and *V. sieheana* are very closely related, and both are difficult to separate from *V. riviniana* Rehb., which does not occur in Iran. Only one specimen is recognized. Further studies are needed.

8. *V. Sieheana* Becker, in Bull. Herb. Boiss. 2(2): 751 (1902).

Syn.: *V. neglecta* M. B., Fl. Taur. — Cauc. I: 172(1808) non F. W. Schmidt, Fl. Boem. 3:55(1791); *V. silvatica* Boiss. Fl. Or. I: 459 (1867); *V. silvatica* var. *caspiaca* Rupr. Fl. Cauc.: 154(1869); *V. caspiaca* Freyn, in Bull. Herb. Boiss. 2 ser.: 840 (1902); *V. masendrana* Freyn ex Becker, Beih. Bot. Central. 26(2): 298 (1910); *V. obtusa* Freyn ex Becker, Beih. Bot. Central. 26(2): 298 (1910); *V. riviniana* Reichb. subsp. *sieheana* (Becker) Hayek Prodr. Fl. Balc. 1:506 (1925).

Selected specimens:

Gorgan: Golestan park, Tangeh-rah, in forest, 450m, Wendelbo & al. 10935; E. of Gorgan, 100 m, Pabot 7626. Mazandaran: Pol-e Sefid, forest above Sangdeh, Assadi & Maassoumi 55311; Nowshahr, Khaeyrud-Kenar forest, 200 m, Assadi 33419, 33408; E. of Ramsar, 50 m, Pabot 2628; Behshahr, Teregobov 228; Babol, Bazzazi 242. — Gilan: 28 km Manjil to Damash, Amarlou area, 700 m, Assadi & Shah-Mohammadi 60040, 60046; Masouleh, Yussefi 240.

9. *V. elatior* Fries, Novit. Fl. Suec. ed. 2:277(1828).

Corgan: Golestan park, S. of Tangeh-rah forest, 550 m, Wendelbo & al. 11017.

This species is recorded from Iran for the first time.

10. *V. spathulata* Willd. in Roem. et Schult. Syst. Veget. 5.353 (1819).

Syn.: *V. spathulata* Boiss. Fl. Or. 1: 454 (1867); *V. papillaris* Boiss. et Hohen. in Boiss. Diagn Ser. 1,8: 52(1849).

Selected specimens:

Tehran: Above Shemshak, 2100 m, Wendelbo 17232; Elika, Maklir mont., 2400–3400 m, Termeh 15322- E.

V. spathulata Willd. var. *delirensis* Khatamsaz, var. nov.

A typo foliis, stipulae et calyceque plerumque sanguineo-glandulis dense obsitae differt.

Mazandaran: Ca. 50 km. SW of Chalus, above Delir village, 2800 m, Assadi & Maassoumi 51569 (Typus TARI), Chalus-Karaj pass, Douzdeband, Ghahreman & Aghustin 39.

V. spathulata Willd. var. *latifolia* Ghahreman, No. 40, Flore de l'Iran en couleur naturelle, nomen.

A typo foliis, late differt.
Mazandaran: Chalus-Karaj pass, Douzdeband, Ghahreman & Aghustin 40 (typus)

11. *V. pachyrrhiza* Boiss. et Hoh. in Boiss., Diagn. ser 1,6:21 (1849) non. *V. pachyrrhiza* Franch., Bull. Soc. Bot. Frce. 26: 84(1879).

Syn.: *V. spathulata* subsp. *pachyrrhiza* (Boiss. et Hohen.) Becker, Bieh. Bot. Centr. 34(2): 396 (1917).

Selected specimens:

Bakhtaran: S. of Karand, Kuh-e Bimar, near Hokany village, 1500 m, Wendelbo & Assadi 16762. —Luristan: 61 km. Ali-goodarz to Shoulabad, 2400 m, Rune-mark & Lazari 26228— Bakhtiari: Bazoft valley, N. slope of Taraz mont., 1700–2300 m, Mozaffarian 57810.

12. *V. cinerea* Boiss. Diagn. ser. 1,1: 7 (1842).

Syn.: *V. cinerea* Boiss. var. *bornmulleri* W. Becker in Bull. Heb. Boiss. 2 Ser. 2: 853(1902).

Selected specimens:

Hormozgan: ca. 100 km SE of Lar, above Sartang village, Kuh-e Shab, 500–900 m, Assadi & Sardabi 42007; Bandar-Abbas, 90 km Sirjan pass, 710 m, Foroughi 1159; Bandar-Abbas, Genou, 1150–250 m, Ghahreman & Mozaffarian 5428. — Bushehr: Ca. 2–3 km NE of Khormoj, 150 m, Runemark & Mozaffarian 27141; Bushehr-Bandar Lengeh pass, 16 km

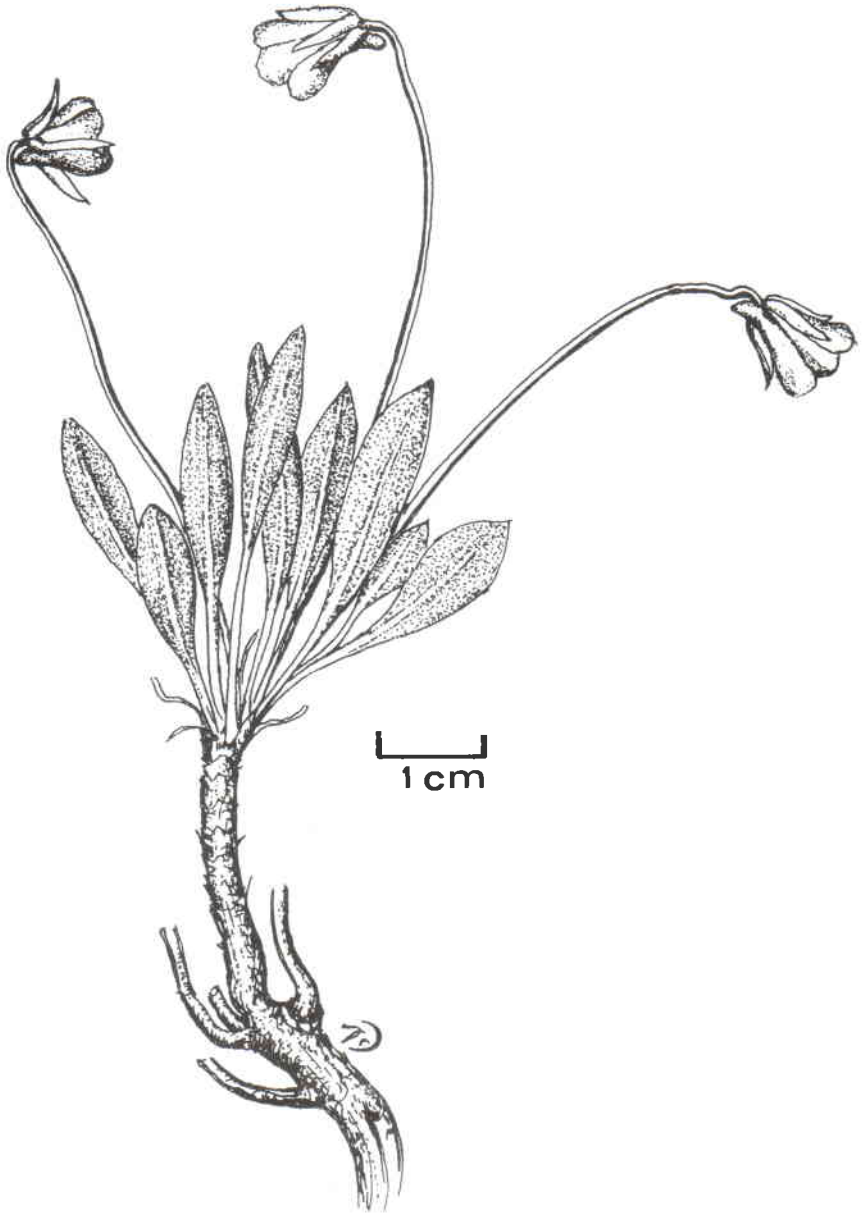


Fig. 1. *Viola spathulata* var. *delirensis*

Taheri, 600–650 m, Bokhari & Wendelbo 256. — Kerman: Kuh-e Jebalebarez, Rechinger & Esfandiari 3726—E, 110 km Bandar-Abbas to Sirjan, 100–1400 m, Mozaffarian 44930. — Baluchestan: Tang-e Sareh, Sharif 321-E, Iranshahr to Bazman, Sharif 320—E.

Intermediates between *V. behboudiana* and this taxon occur. I have not seen the type specimen of *V. cinerea* var. *bornmulleri* Becker, but from the description no clear difference could be found, separating typical *V. cinerea*.

13. *V. behboudiana* Rech. fil. et Esfandiari, Anz. Osterr. Akad. Wiss., Math. - Nat., 87:297 (1950).

Syn.: *V. makranica* Omer & Qaiser, Pak. J. Bot. 17(1): 137 (1985).

Selected specimens:

Hormozgan: Bashagard, 11 km Senderak, Arangeh, 450 m, Mozaffarian & al. 39188; 66 km. N. of Bandar-Abbas, Sirjan pass, 400 m, Wendelbo & Foroughi 15703, ca. 50 km. N. of Bandar-Abbas, Sarzeh, 250 m, Mozaffarian 4980. — Kerman: Darzin, 63 km Jiroft pass, 1750 m, Foroughi 15950; ca. 26 km. Minab, Behboudi 319—E. — Baluchestan: 20 km. Rask to Chah-Bahar, 300 m, Runemark & Assadi 22396, Hodar, Ghasr-e Ghand, 380 m, Foroughi

10755; ca. 25 km. Iranshar to Khash, Baluchekan, 950 m, Mozaffarian 53369.

I have not seen the type of *V. makranica* but judging from the description it should be identical with *V. behboudiana*.

14. *V. stocksii* Boiss., Fl. Or. 1: 453 (1867).

Syn.: *V. cinerea* var. *stocksii* (Boiss.) Becker, *Viola* Asiat. et Austral. in Beih. Bot. Centra. 36(2): 37(1918).

Selected specimens:

Hormozgan: Bandar-Abbas, ca. 20–30 km, W. of Rudan, 150–200 m, Wendelbo & Foroughi 15630, 42 km. Minab to Senderk, 160 m, Mozaffarian & al. 39145.

15. *V. tricolor* L., Sp. Pl. 935 (1753).

Selected specimens:

Azarbayejan: W. of Kalibar, Ghaleh Babak, 1700–1950 m, Mozaffarian 43661; Astara to Ardabil pass, Gardaneh Heyran, Iranshahr 14073.

16. *V. arvensis* Murray, Prodr. Des. Strip. Gott. 73 (1770).

Syn.: *V. tricolor* L. var. *arvensis* (Murray) Boiss., Fl. Or. 1: 465 (1867).

Selected specimens:

Mazandaran: S. of Ramsar, 23 km

Javaherdeh, Jirkuh, 1450 m, Runemark & Maassoumi 20699. — Azarbayejan: Arasbaran protected area, Kaleibar to Hejrandoost, 1350–1700 m, Assadi & Maassoumi 20034; E. of Veinagh, 1200–1500 m, Assadi & Maassoumi 20311.

Intermediates between *V. kitaibeliana* and this taxon occur.

17. *V. kitaibeliana* Roem. & Schult., Syst. Veg. 5: 383 (1819).

Syn.: *V. tricolor* var. *kitaibeliana* (R. & S.) Boiss., Fl. Or. 1: 466(1867); *V. brachyantha* Stapf, Polak. Exp. 2: 39 (1886); *V. hymetia* sensu Parsa Flore de l'Iran 1: 967 (1951) non Boiss. et Heldr.

Selected specimen:

Mazandaran: E. slope of Damavand mont. above Malar, 2550 — 3600 m, Assadi & Mozaffarian 33184.

Intermediates between *V. occulta* and *V. modesta* and this taxon occur.

18. *V. occulta* Lehm., Ind. Sem. Hort. Hamb. (1829). Schmidt in Ber. Deutsch. Bot. Ges. 75(3): 78–84 (1962).

Syn.: *V. appendiculata* Bekr. in Mitt. Thür. Bot. Ver. 19: 40 (1904).: *V. tricolor* var. *appendiculata* DC. Prodr. 1: 303 (1824).

Selected specimens:

Gorgan: 80 km Bojnourd to Gorgan, 1400 m, Assadi & Maassoumi 50063; Golestan forest, Almehr, 1800 m, Foroughi 8712; Golestan forest, between Sharlegh and Cheshmeh-Khan, Zehzad 82283. — Mazandaran: Damghan to Sari, 2100 m, Wendelbo & Assadi 29513; 31 km. Kandavan to Haraz pass, Nassan Nur, 26030 m, Assadi & Mozaffarian 32991; Chalus-Karaj pass, Siah-Bisheh, 2400 m, Foroughi 149. — Gilan: Between Ghazvin and Rudbar, Kuhin, 1600 m, Wendelbo & Assadi 27680; Deylaman, Abaei 13014—E. — Azarbayejan: W. of Urumieh, Silvana, 1700 m, Runemark & Foroughi, Ardabil to Khalkhal pass, 15 km Khalkhal, 1500–2000 m, Termeh & Moussavi 16505—E; Ashk Island in Urumieh lake, 1300–1400 m, Zehzad 83389; Arasbaran protected area, Kalan, 2500 m, Zehzad 83653. — Kurdistan: Bijar, 2000 m, Iranshahr & Dezfolian 13693—E; Lorestan: Khalilabad, 40 km SE. of Aligoodarz, 2300–2450 m, Wendelbo & Assadi 16439. — Korassan: ca. 45 km N. of Shirvan, Goloulsarani protected area, 2300–3000 m, Assadi & Maassoumi 50406; between Ghuchan and Darehgasz, Tandooreh National Park, Shekarab, 2300 m Assadi & Maassoumi 50642. — Semnan: Shahrud-Bastam, 1120 m, Rechinger 50343; between Shahpas-

sand and Shahrud, 2200 m, Wendelbo & Assadi 29712. — Tehran: Lashgarak, 2200 m, Wendelbo 17239; Karaj, Kondar, 2320 m, Riazi 8708; Kan, 1800 m, Runemark & Varnakeh 25505; Damavand, Abesard, Sabzevari 13015—E.

From this species var *variegata* Freyn et Sint. (Sint. II. Or. 1894). has been mentioned from Iran which to me its correct position is not clear.

19. *V. modesta* Fenzl, Pug. 12(1842).

Syn.: *V. ebracteolata* Fenzl., III. et Descr. Pl. Nov. Syr. et Taur. 49 (1843);

V. septempunctata Siehe ex Bornm., Fede Repert. Beih. 89:90 (1936).

Selected specimens:

Azarbayejan: W. of Urumieh, Targevar, 1500 m, Runemark & Foroughi 19805. —Kurdistan: Sanadaj to Kamiaran, 40 km Sanandaj, 1300 m, Fattahi 754. —Bakhtaran: Karan, Sharif 6048—E; Kamiaran, Berenjan protected area, Ghahreman & al. 749. —Lorestan: Kuh Sefid, Tang-e Farakhesh, 1800—1900 m, Wendelbo & Assadi 16686; Tang-e Tir, ca. 40 km W. of Khoramabad, 1300 m, Wendelbo & Assadi 16551. — Ilam: Reno, Iranshahr 13691—E; Mehran, Surin, Mirzajan 6049 — E. — Esfahan:

Semirum, 3 km Maymand, 2000 m, Noroozi 2318. — Kuhgiluyeh & Boirahmad: Yasuj, Sisakht, 2100 m, Riazi, 8716. —Fars: Kazerun, Kotal-e Pirezan, 2350 m, Roshan 9167; Fahlian, 19 km Yasuj pass, 1800 m, Riazi 9361; Between Shiraz and Bushehr, after Dasht-e Arjan, 1800 m, Assadi & Abouhamzeh 38261; Dasht-e Arjan, 2250—2400 m, Mousavi & Termeh 33623 — E; 23 km W. of Shiraz, Pabot 6120. — Tehran: Garmsar, Saranvarz, 1630 m, Termeh & Matine 34940 — E.

Species doubtfully recoded from Iran.

V. karakalensis Klokov, Fl. U.S.S.R. 15: 687(1949); Zohary, Consp. F. Orient. 2: 64(1983).

V. modestula Klokov, Fl. U.S.S.R. 15: 687, t. 22, ff—6,7 (1949); Zohary Consp. Fl. Orinet. 2: 65 (1983).

These two species have been recorded from Iran by Klokov in Flora of the U.S. S.R. without further details. I have seen no Iranian specimens of these species. *V. meyeriana* (Rupr.) Klokov, Fl. U.S.S.R. 15: 479 (1949); Zohary, Consp. Fl. Orient. 2: 65(1983).

This species has been described from Elbrus in Caucasus, and mentioned as an endemic to that area, but Zohary in

l.c. records it from N. of Iran.

V. canina L., Sp. Pl. 935 (1753); Boiss.,
Fl. Or. 1: 459 (1867).

This European species has been

recorded from N. of Iran by Zohary in
Consp. Fl. Orinet. 2: 64 (1983), but I
have seen no Iranian specimens of it.