

NOTES ON ALLIUM L. SUBGEN. MELANOCROMMYUM (WEBB & BERTH.) ROUY IN IRAN

A. Seisums

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Allium assadii Seisums is described as a new to science and *Allium hollandicum* R.M.Fritsch is reported for the first time from Iran. Distributional and taxonomical notes are given on *A. jesdianum* Boiss. & Buhse, *A. kazerouni* Parsa, *A. altissimum* Regel, and *A. pseudozeravschanicum* M.Pop. & Vved. ex B.Fedtsch. & M. Pop.

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Allium L. subgen. Melanocrommyum مطالبی پیرامون آرایه
در ایران (Webb & Berth.) Rouy

آرنیس سیسومز

گونه *Allium assadii* به عنوان گونه جدیدی برای علم گیاهشناسی شرح داده می شود. گونه *Allium hollandicum* برای اولین بار از ایران گزارش می شود. مطالبی پیرامون منطقه انتشار و مشکلات آرایه شناسی گونه های زیر ارائه می گردد.

Allium jesdianum, *A. kazerouni*, *A. altissimum*, *A. pseudozeravschanicum*.

Introduction

Studies of herbarium material and observations of living material, both in the wild and in cultivation, shows that *Allium jesdianum*, as treated by Wendelbo (1966, 1971, 1985) encompasses 3 distinct species, *A. jesdianum* Boiss. & Buhse, *A. kazerouni* Parsa and *A. hollandicum* R.M.Fritsch. *A. jesdianum* is known only from a small area in the central part of the Kuhrud mountains (west of Yazd) and can be identified on account of the 8-10 mm long, 0.9-1.3 mm wide, linear perianth segments, 7-9 mm long style and greyish-green, glaucous leaves. A detailed description of *A. jesdianum* has been provided by Fritsch (1996).

Allium kazerouni Parsa, Kew Bull. 1949: 33 (1950) [*A. saporis* Stapf, in sched]. Type: Cult. hort. Vindob., 1886, Stapf. Bulb in jugo Kotael Henan prope Kazerun legit (K!-holo.).

A. kazerouni was included in the synonymy of *A. jesdianum* by Wendelbo (1966, 1971, and 1985), but it is separable from *A. jesdianum* in having finely reticulate outer tunics, a slender habit and narrower leaves. Since - apart from the rather vague and brief protologue

containing some inaccuracies - there is no description, one is provided below.

Bulb 1.5-2.5 cm diam., globose, outer tunics finely reticulate-fibrous, brownish-cinereous. Stem 20-50 (-60) cm long, 2-5 mm diam., shallowly ribbed. Leaves 2-3 (-5 in cultivated material), 20-35 cm long, 0.5-1.5 cm wide, linear, intensive green, slightly shiny, margin smooth. Spathe twice shorter than pedicels, acuminate, opening down to base. Umbel initially hemispherical to almost spherical in fruit, lax; pedicels 2-5 cm long, during flowering rather unequal, subequal in fruit. Perianth stellate; segments 6-8 mm long, 0.9-1.3 mm wide, narrowly lanceolate, pale purplish-pink with a brighter vein, after flowering reflexed and contorted. Filaments slightly shorter than perianth, near the base fused with perianth and connate, above subulate from broadly triangular or quadratic base. Style c. 5 mm long. Ovary stipitate, verruculose; 2 (-3) ovules per loculus. Capsule cordate in outline.

Specimens examined. Iran: Khuzestan: Sultanabad, 3.5.1890, Strauss (K). Ramhormoz, Izeh, Abkhogan, 1550 m, 1.5.1973, Rowshan 9500 (TARI). Boyer Ahmad va Kohkiluyeh: 5 m W of Sisakht,

7300', 2.5.1973, Hewer 1952 (GB; K); 36 km N of Pataweh on Kuh-i-Sehguta, 8000', 12.5.1973, Hewer 2016 (K); Yasuj, 51 km Fahlian rd., 1660 m, 28.4. 1972, Faroughi 3542; Kakan, 15.6.1967, Kashkouli 7079E (GB; IRAN); Fahlian, 19 km Yasuj rd., 26.4. 1973, Riazi 9350 (TARI), Fars: Tang-i-Kaeldu near Dasht-e Arzhan, 26.5.1885, Stapf (K); Kotal-i-Abdui near Dasht-e Arzhan, 17.5.1885, Stapf (K); Dasht-e Arzhan, old road to Kazerun, first pass, 2200 m, 27.5.1975, Faroughi 17456 (LE; TARI). Chahar Mahal Bakhtiyari: Kuh-rang, Abbas gorge, 2400 m, 1.6.1959, Wendelbo 1700 (BG). -Iraq: Rowanduz: Baradost Mt., 15.5.1951, Thesinger 898, p.p. (BM); Haji Umran, 1750 m, 3.6.1948, Chapman 12289 (K); near Rayat, 5000', Low 274 (BM). Sulaimanya: Qara Dagh, 1000-1400 m, 23.4.1947, Gillett 7903 (K); Kopa Qara Dagh [Qopi Qaradagh], 29.4.1964, Berkley 852 (K); Halabeha [Halabja], 700 m, 23.4.1947, Rawi 8906 (K).

Most of the elements in Wendelbo's (1966, 1971, 1985) description for *A. jesdianum* belong to *A. kazerouni*, and some of the line drawings (1966, 1971) provided for it are definitely of *A. kazerouni*. Therefore, Wendelbo under the name of *A. jesdianum* has inadvertently described *A.*

kazerouni. The cited specimens, however, belong to *A. kazerouni*, *A. jesdianum* and *A. hollandicum*. Less clear is the identity of an illustration in the Flora of Iraq (Wendelbo, 1985); it could be *A. hollandicum*.

The identity of *A. bakhtiaricum* Regel is rather obscure. The protologue (Regel, 1875) was based on fragmentary material; the description is scant and could be widely interpreted. The original material, collected by Bode, was said to have come from the Bakhtiyari mountains. Wendelbo (1971), having checked the type sheet, noted that it contained very young inflorescences, which most probably belong to *A. hirtifolium* (a synonym of *A. stipitatum*) or *A. jesdianum* (actually *A. kazerouni*) but it is "absolutely impossible to attach this name to any of them with certainty". Despite an assiduous search, I could not trace the type in the Herbarium of the Komarov Botanical Institute (LE); it is probably lost.

There is a recent attempt by Fritsch (1996) to establish the use of this name. He presumed that the type locality was near Farsan in Bakhtiyari Province. Having found there another species - apart from *A. stipitatum* - he assumed it to be *A. bakhtiaricum*. His description and the illustrations provided for *A.*

bakhtiaricum undoubtedly refer to *A. kazerouni*, as well as most of the specimens cited, although some of them belong to *A. hollandicum*. This would mean accepting the priority of the older name *A. bakhtiaricum* over *A. kazerouni*. However, Bode's trip in south-western Iran - according to Fedtschenko (1945) - was made from Shiraz through Kazerun to the mountains near Shuhstar, i.e., within the borders of Shiraz, Boyer Ahmad va Kohkiluyeh and Khuzestan Provinces. It is evident, therefore, that the provenance indicated on the labels of his collections as being Bakhtiyari mountains implies a much larger area than that of the present Bakhtiyari province. This makes it impossible to define a precise type locality. Fritsch does not provide any proof why *A. kazerouni* and not *A. stipitatum* should be identified with the type of *A. bakhtiaricum*. There is also a discrepancy between Fritsch's description for *A. bakhtiaricum* and its protologue. Fritsch characterises filaments as somewhat shorter than 6-8 mm long perianth segments. The filament length in the protologue being 3 times shorter than the approximately 8 mm long perianth segments indicates that measurements were taken from very young

buds. It is impossible that they could be already of maximum length - observed for completely developed flowers - being just in bud. This characteristic does fit *A. stipitatum*, in which the segments are 9-12 mm long in fully developed flowers. All other characters of this scant protologue would fit equally well both *A. kazerouni* and *A. stipitatum*, or even *A. jesdianum*. Therefore I find Fritsch's proposal unfounded.

Allium hollandicum R. M. Fritsch, *Candollea* 48: 422 (1993). Type: *Ex culturae in horto Gaterslebensis, 27.5.1986, TAX 1631 (GAT! photocopy seen). [A. aflatunense auct., non B.Fedtsch.: Stearn in Walters & al., The European Garden Flora 1: 244 (1986)].*

For decades, this highly decorative species has been cultivated widely in Europe, usually under the names of *A. aflatunense*, *A. rosenbachianum* or *A. jesdianum*. It was recognised only recently as being a distinct species and the name *A. hollandicum* was given for it by Fritsch (1993). However, he was unable to provide any information on its natural distribution and supposed it to be of hybrid origin in gardens. The coincidence of the protologue, as well as various cultivated

forms, with living specimens originating from "Kurdish mountains"(assumed to be from north-eastern Iraq) and also pressed specimens from this area, allows one to state with some certainty that the provenance of *A. hollandicum* is north-eastern Iraq and western Iran. A description is given below.

Bulb 2.5-4 cm diam., depressed globose, outer tunics membranous, cinereous. Stem 50-80 (-100) cm long, 5-9 mm in diam., during flowering smooth, in dry state shallowly ribbed. Leaves 3-5 (-9 in cultivated material), 30-45 cm long, 1.5-3 cm wide, linear-lanceolate, greyish-green, glaucous, margin smooth. Spathe 2-3 times shorter than pedicels, shortly acuminate, opening down to base. Umbel initially hemispherical and fairly dense, finally becoming spherical and lax; pedicels 3-5 cm long, subequal. Perianth stellate; segments 7-9 mm long, 1.8-2 mm wide, lanceolate, usually purplish-violet (white to deep purple in some cultivated clones) with brighter vein, after flowering reflexed and contorted. Filaments slightly shorter than perianth, subulate, near the base fused with perianth, above in 0.3-0.5 mm long annulus connate. Style c. 6 mm long. Ovary

stipitate, verruculose; 2-4 ovules per loculus. Capsule cordate in outline.

Specimens examined. Iran: West Azerbaijan: inter Rezaiyeh et Oshnaviyeh, valle Qasemlu, 18.5.1973, Siami 32 (TARI), 21. 5. 1974, Siami 2155 (TARI); Dashte-Bel, 2. 6. 1974, Siami 2164 (TARI); SW of Rezaiyeh, Silvana valley along the road SE of Dizeh, 1400 m, 25.5.1976, Runnemark & Foroughi 19854 (TARI). Kordestan: 85 km on road from Baneh to Marivan, 1800 m, 21. 10. 1977, Runnemark & Mozaffarian 25953 (TARI); 91 km from Baneh to Marivan, 2150 m, 30.5.1978, Runnemark & Mozaffarian 29330 (TARI); 25km SSE of Sanandaj, above Narran, 2200-2600 m, 15. 6. 1987, Assadi 60493 (TARI); Kuh-e Hamzeh Arab, between Bijar and Hamadan, 2200-2600 m, 1.7.1971, Lammond & Terme 4335 (E); Si Vulak, 17.5.1929, Cowan & Darlington 2250 (K); Sivik, old village site, 7500', 20.5.1929, Cowan & Darlington 2340 (K). Hamadan: Bahar, 27. 4. 1965, Babai 7018E (GB). -Iraq: Rowanduz: N of Rost, Mt. Must, 8000-10000', 19. 5. 1951, Thesinger 963 (BM); cultivated material originating from Algurd Dagh, Ludlow-Hewitt (K); S slope of Karoukh mountain, 1600-2200 m, 10. 6. 1950, Kass & Nuri 27495 (K); Sarcal, c.

2200 m, 5.6.1960, Hadac (PR).

Allium altissimum Regel in Acta Horti Petropol. 13: 343 (1884). Lectotype (R. M. Fritsch in Taxon 39, 3: 502 (1990)): Ex horto bot. Petropolitano, VI [18]84 (LE!).

There is a marked disjunction in the distribution of this species. From the study of dried material, especially in the herbaria of central Asia (AA, ASH, FRU, TAD, TASH), five fragmented areas could be drawn: (1) the western part of Zailijskij Alatau, the Chu-Ili mountains and the eastern part of Talassian Alatau (Kazakhstan and Kirgizstan); (2) the Nuratau range (Uzbekistan); (3) the northern slope of Alai and the north-eastern part of the Turkestan ranges (Uzbekistan, Kirgizstan); (4) the Turkestan mountains and the Kugitang range (Afghanistan, Turkmenistan) and (5) the central and eastern parts of Kopet Dagh and the Khorassan mountains (Iran, Turkmenistan). Although cited for Khorassan and Kopet Dagh, e.g. by Wendelbo (1971), Matine (1976) and Vvedensky (1971), it has recently been questioned by Fritsch (1996) "whether *A. altissimum* really occurs in Iran", taking as

a basis that living material from the neighbouring Turkmenian Kopet Dagh was only "glabrous *A. stipitatum*". However, a check of all specimens cited as *A. altissimum* in Flora Iranica (Wendelbo, 1971) and more than 20 other herbarium sheets of it from Turkmenian Kopet Dagh leave no doubt concerning their identity. Besides, living plants from this area (2 km NE of Manish village, eastern Kopet Dagh, and the area around Firjuza village, central Kopet Dagh) are identical to cultivated material of *A. altissimum* from the Zailijskij Alatau, and the Alaiskij and Nuratau ranges. Never has *A. stipitatum* been recorded for Kopet Dagh before. I could find no specimens belonging to *A. stipitatum* from there in herbaria, nor could I find it during expeditions to several parts of the Turkmenian Kopet Dagh. Additional support is necessary to be confident about *A. stipitatum* being distributed in Kopet Dagh. Some decent specimens of *A. altissimum* from Iran - in addition to those listed in Flora Iranica - are cited below.

Iran: Khorassan: versus Rivasch, 1300-1400 m, 4.5.1975, Rechinger 51185 (K); 14 km from Kashmar to Neyshabour, 1400-1500 m, 12.6.1981, Assadi & Mozaffarian 35634 (TARI); NW of Neyshabour, above

Mirabad, 1600-1900 m, 17.6.1981, Assadi & Mozaffarian 36124 (TARI); Tandooreh Protected National park, c. 25 km SW of Darreh-gaz, near Chehel-Mehr, 1200 m, 28.5.1984, Assadi & Maasoumi (TARI).

***Allium pseudozeravschanicum* M.**

Pop. & Vved. ex B. Fedtsch. & M. Pop., Fl. Turkmen. 1: 263, in adnot. (1932). Lectotype (R. M. Fritsch in Taxon 39,3: 506 (1990)): [Transcaspien region, ... northern slope of Mt. Syunt], 8 V 1912., V.I. Lipsky 3318 (LE!).

A. pseudozeravschanicum, distributed in Kopet Dagh (Turkmenistan, Iran), is closely allied to *A. sarawschanicum* Regel, from the south-western Pamir-Alai (Tajikistan, Uzbekistan) and the Turkestan mountains (Afghanistan). These two species share the distinct outgrowths ("hornlets") on top of the ovary. There is disagreement whether to consider them as separate species or not. For example, Vvedensky having treated them as distinct (1935), later on (1971) regarded them as conspecific. Wendelbo (1971), considering the distinction a "feeble one", followed suit, while Kamelin (1988) treated them as distinct species again. It is difficult to come to any satisfactory conclusion based solely

on the study of pressed specimens. However, observations of living plants in cultivation reveal a set of distinctive characters (Seisums 1992). Since this report was published somewhat locally and has been cited imprecisely later (Fritsch 1996), I allow myself to repeat it here with some slight alterations. In *A. pseudozeravschanicum*, when compared with *A. sarawschanicum*, perianth segments are 6-8 (not 9-10) mm long, 1.5-1.8 (not 1.2-1.5) mm wide, lanceolate (not linear), tapering from the middle (not gradually from the base) and are pale violet-purple (not rosy-purple). Pedicels of the same umbel are of almost equal length (not quite unequal, varying within the range of 2-3 cm); therefore the umbel is more rounded in *A. pseudozeravschanicum*. The comparison of plants of both species cultivated under similar conditions shows that *A. pseudozeravschanicum* tends to have a more slender stem and a smaller umbel. However, these last two features can vary greatly, depending on growing conditions, and should not be regarded, therefore, as a key distinction when comparing plants from different localities. When studying herbarium material one should examine in detail the perianth and check the shape of

the umbel. In pressed specimens the perianth becomes shrivelled, its segments look narrower and the colour fades. The boiling and careful preparation of the perianth is essential for correct naming. A study of herbarium material of both species from many localities confirms the distinction observed in living plants. Probably one could conclude that the distinction between these two taxa is too insignificant and then prefer to separate them at subspecific level. Having found no apparent introgression, I prefer to treat them as distinct species. A description of *A. pseudozeravschanicum* is provided below.

Bulb 1.5-2.3 cm diam., depressed globose, outer tunics membranous, brownish-cinereous. Stem 25-45 (-80 in cultivated material) cm long, 2.5-5 mm diam., during flowering smooth, in dry state prominently ribbed. Leaves 1-2 (-4 in cultivated material), 20-35 cm long, 1.5-4 cm wide, lanceolate, greyish-green, glaucous, margin scabrid. Spathe equal to twice shorter than pedicels, opening down to base. Umbel spherical, lax; pedicels 2-3.5 cm long, equal, basally green in living material seen. Perianth stellate; segments 6-8 mm long, 1.5-1.8 mm wide, lanceolate, pale violet-purple with greenish-brown

vein, after flowering reflexed and contorted. Filaments slightly shorter than perianth, near the base fused with perianth and connated, above subulate from quadratic, often dentate, base. Style c. 4 mm long. Ovary indistinctly stipitate, verruculose, with six apical outgrowths ("hornlets"); (2-) 3-4 ovules per loculus. Capsule cordate in outline.

Examined specimens from Iran. Khorassan: 40 km E of Gompad-e Cabus, 3500', 16.5.1966, Furse 7415 (K); Kuh-e Alam, c. 6 km N of Cheshmeh-e Gabri, 2400 m, 1.7.1973, Edmondson 1206 (E); Gulul Sarani protected area, 12-13.6.1975, Rechanger 53351 & 53354 (W). Gorgan: Almehr, 1900 m, 30.5.1972, Foroughi 3511 (TARI), 1800 m, 19.6.1974, Wendelbo & Foroughi 12649 (TARI). Semnan: Shahrud, Khosheyeylagh, 2070 m, 10. 6. 1973, Foroughi 10198 (TARI).

Allium assadii Seisums, **sp. nov.**

Ab *A. brachyscapo* Vved., cui affinis est, scapo pro maxima parte supraterraneo (nec subterraneo), foliis scapo aequalibus vel paulo (nec 2-5plo) longioribus differt.

Typus. [Central Iran: Markazi]: Saveh pass, Rude Shur, 22. [4.] 1968, Bonvan 9697 (TARI-holo.).

Bulbus 1.5-2 cm diam., globosus, tunicis

exterioribus papyraceis, cinereis. Scapus 25-35 cm altus, pro c. $\frac{2}{3}$ supraterraneus, 2-4 mm diam., laevis. Folia (1-) 2-3, scapum aequantia vel paulo superantia, 1-1.5 cm lata, linearia, \pm flexuosa et undulata, margine cartilaginea et minute scabrida. Spatha quam pedicelli brevior, breviter acuminata, sub anthesi basi basin pedicellorum includens. Umbella fasciculata vel hemisphaerica, multiflora (e floribus 30-60 composita), densa; pedicelli c. 2 cm longi, subaequales. Perianthium substellatum; segmenta 5-6 mm longa, c. 1.3 mm lata, lanceolata, obtusa, pallide purpureo-violacea, nervo saturate claro, post anthesin reflexa et contorta. Filamenta perianthio longiora, subulata, prope basin perianthio adnata, supra in annulo connata, post anthesin \pm rigida. Ovarium stipitatum, verruculosum; ovula in quoque loculo (2-) 3-4. Capsula ambitu cordiformis.

Species clarissimo Dr. Mostafa Assadi dicata.

Specimens examined. Iran: Markazi: Protected [area] Rude Shur, 950 m, 5. 1974, Dini & Bazargan 8107 (TARI); Exclosure Zarand Saveh, 1250 m, 9. 5. 1973, Babakhanlou & Amin 14190 (TARI); [Hagib], 4. 5. 1904, Gadd, 285 (LE); Emrabad near Ebrahimabad, 6000', 18. 4.

1929, Cowan & Darlington 598 (K).

Bulb 1.5-2 cm diam., globose, outer tunics papery, cinereus. Stem 25-35 cm long, about $\frac{2}{3}$ above soil surface, 2-4 mm diam., smooth. Leaves (1-) 2-3, equal or somewhat longer than stem, 1-1.5 cm wide, linear, \pm flexuous and undulate, cartilagineous and minutely scabrid on the margin. Spathe shorter than pedicels, shortly acuminate, during flowering base embracing the base of pedicels. Umbel fasciculate or hemispherical, dense, many (30-60-) flowered; pedicels about 2 mm long, subequal. Perianth stellate; segments 5-6 mm long, about 1.3 mm wide, lanceolate, obtuse, pale purplish-violet with a prominently brighter vein, after flowering reflexed and contorted. Filaments longer than perianth, subulate, near the base fused with perianth, above in annulus connate, after flowering \pm rigid. Ovary stipitate, verruculose; (2-) 3-4 ovules per loculus. Capsule cordate in outline.

The features of flowers clearly identify the new species as a member of the *A. brachyscapum* Vved. and *A. scotostemon* Wendelbo alliance, but it can be easily distinguished from both by having stem for 15-20 cm held above soil surface (not

almost subterranean), leaves equal to stem (not half to three times exceeding it) and other details. This is apparently a very rare plant in Iran, known only from 3 localities in Markazi province.

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