

TWO NEW PLANT SPECIES FROM KURDISTAN PROVINCE, WEST OF IRAN

H. Maroofi

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Among the plant materials collected from Kurdistan province, two new species including *Ornithogalum sanandajense* (Liliaceae) and *Satureja avromanica* (Lamiaceae), were recognized. They are described here and their taxonomic characters, differences with their relatives and illustrations are given.

Hosein Maroofi, Research Center of Agriculture and Natural Resources of Kurdistan province, P. O. Box 66169-36311-714, Iran.

Key words. *Ornithogalum sanandajense*, Liliaceae, *Satureja avromanica*, Lamiaceae, new species, Taxonomy, Kurdistan, Iran.

گزارش گونه‌های *Ornithogalum sanandajense* و *Satureja avromanica* به عنوان دو گونه جدید از استان کردستان، ایران

حسین معروفی، عضو هیئت علمی مرکز تحقیقات کشاورزی و منابع طبیعی استان کردستان.

گونه *Ornithogalum sanandajense* به عنوان گونه جدید برای علم گیاهشناسی معرفی می‌گردد. این گونه با گونه های *O. narbonense* و *O. brachystachys* قرابت داشته و تفاوت‌های اساسی گونه جدید با آنها مورد بحث قرار می‌گیرد. گونه *Satureja avromanica* نیز به عنوان گونه جدید معرفی و اختلافات آن با خویشاوندان نزدیک *S. edmondi* و *S. macrosiphonia* مورد بررسی قرار می‌گیرد. هر دو گونه فوق از استان کردستان جمع‌آوری شده‌اند.

Introduction

During the collection and study on plant specimens in Kurdistan herbarium, two interesting plants were found. They are determined as new species. *Ornithogalum sanandajense* belong to Liliaceae. It is an affinity of *O. narbonense* and *O. brachystachys*. The other new species namely *Satureja avromanica* belong to Lamiaceae seems to be closest relative of *S. macrosiphonia* and *S. edmondi*. In this paper new species are described and compared with their relatives.

New species

***Ornithogalum sanandajense* Maroofi, sp. nov.** (Fig 1).

Bulbi 1.6-3 cm diam., ovoidei. Scapus racemo incluso 20-36 cm longo, 1.5-3.5 mm lato. Folia 2-8, usque ad 20 cm longa, 1.5-9 mm lata, margine laevia vel ciliata. Racemus cylindraceus vel cylindraceo-ovoideus, 4-11 cm longus. Flores 10-38. Bractee lanceolato-acuminatae, 7.5-13 mm longae, dorso plerumque nervis viridibus. Pediceli floriferi 1-4 (-7) mm longi, ascendentes. Tepala usque ad 14 mm longa, 2 mm lata, lineari-oblonga, obtusa, alba, extus pallide brunnea vel alba, dorso brunnea, brunneo-viridia vel in sicco nervis viridibus. Stamina 6-8 mm longa, unequalongae;

antherae flavae, 2.5-4 mm longae, filamenta subulate acuminata, 5.5 mm longa. Capsula ovoidea, rugosa, usque ad 7 mm longa. Semina usque ad 3 mm longa, nigra, rugulosa.

Typus. Kurdistan: Km 28 from Saqqez to Baneh, Piromaran village, Nacarouz mountain, 2500 m. 10.06.2003, Maroofi & Sh. Naseri, 6137 (holotypus Kurdistan herbarium; isotypus TARI).

Perennial. Bulb ovoid 1.6-3 cm. in diameter. Scape including the raceme 20-36 cm. long and 1.5-3.5 mm. broad. Leaves 2-8 in number, 5-9 mm. broad, up to 20 cm. long, usually withered and folded in flowering time, at the margins smooth or ciliate. Inflorescence cylindrical to cylindrical-ovate raceme, 4-11 cm. long, with 10-38 flowers. Bracts 7.5-13 mm. long; lowers lanceolate, long acuminate; the narrowed upper part of bracts equal or longer than its broader lower part; upper bracts much broader and smaller than lowers, usually with greenish bands. Pedicels in flowering state 1-4(-7) mm. not more elongated in fruiting state, but thickened, ascending. Tepals up to 14 mm. long and 2 mm. broad, linear to oblong, apex rather convoluted, obtuse, white inside, bright brownish to white with brownish to brown-greenish or green nerves dorsally in dry state. Stamens 6-8 mm. long, unequal, slightly more than

half length of perianth; anthers yellow, 2.5-4 mm.; filament subulately acuminate, 5.5 mm. long. Capsules rather ovoid, rugose on the surface, up to 7 mm. long. Seeds up to 3 mm longa, black, rugose.

Other specimens studied. Kurdistan: Sanandaj to Saral area, elevation of Gahvareh village, 2000 m. 01.06.2007, Maroofi 8139; Km 16 Sanandaj to Maryvan, new road, 1800-1900 m., 25.05.2002, Maroofi & M. Naseri 5326; South West of Sanandaj, Dolab village, Avalan mountain, 2570 m. 9.06.1997, Kaffash & Karegar 4727 (imperfect specimen). Lorestan: Dorud, Oshtorankouh prope Saravand, 1900 m. 06.05.1973, M. Riazi, 9696!

Rechinger (1995) cited the specimen Riazi 9696 in Flora Iranica under *Ornithogalum brachystachys* C. Koch. This specimen was studied in the herbarium of TARI. The characters of this specimen differ from *O. brachystachys* by having shorter pedicel, long bracts and not green fascia on the back of tepals. Further studies showed that this specimen belongs to the new species *Ornithogalum sanandajense*.

Ornithogalum sanandajense belongs to the subgen. *Beryllis* (Salisb.) Baker. It is related to several species, and its closest relatives are *O. kurdicum* Bornm., *O. arcuatum* Stew., *O. narbonense* L. and *O. brachystachys* C. Koch. It differs from *O. kurdicum* Bornm. by the following characters: Scape size 20-36 cm. (not 50-80 cm.), broadness of leaves 1.5-9 mm. (not 20-55 mm.), pedicel 1-4 (-7) mm. (not 10-15 mm.). It differs from *O. brchystachys* C. Koch. by the following characters: Number of leaves 2-8 (not 3-6), raceme 4-11 cm. long (not 10-15 cm.), bract 9-13 mm., much longer than the pedicel (not shorter than the pedicel), color of tepal dorsal nerves in dried state are usually brown, brown-greenish or rarely green (not always green), capsule up to 7 mm. (not 10-12 mm.). The new species is compared with all of its relatives by 11 characters in table 1. The characters have partly been taken in Cullen (1985), Komarov (1935), Rechinger (1995), Zahariadi (1980).

Etymology: The epithet alludes to Sanandaj city, center of Kurdistan province.

Table 1: Comparison of *Ornithogalum sanandajense* and its relatives.

| Species | <i>O. sanandajense</i> | <i>O. narbonense</i> | <i>O. brchystachys</i> | <i>O. kurdicum</i> | <i>O. arcuatum</i> |
|--|--|--|--|--|---|
| Characters | | | | | |
| Bulb diameter | 1.6 -3 cm | ----- | 1.5 -3 cm | c. 3 cm | 2.5 -4 cm |
| Scape size including racemes | 20-36 cm | 60-80 cm (without raceme) | 17-45 cm | 50-80 cm | 35-120 cm |
| Leaf number | 2-8 | 4 -6 (-7) | (3-) 4-6 | 6-8 | 5-6 |
| Broadness of leaves | 1.5 -9 mm | 7-16 mm | 3 -8 mm | 2 (-5.5) cm | 4 -18 mm |
| Raceme size | 4-11 cm | 12-30 cm | 10-15cm | ----- | 20-70cm |
| Flower number | 10-38 | 25-75 | 10-25 | ----- | many |
| Bract size and shape | 9-13 mm, much longer than the pedicels, lanceolate | equaling pedicel at fruiting time, lanceolate | slightly shorter than the pedicels, lanceolate - acuminate | 10-15 mm, triangulate - subulate | 20-30 mm |
| Pedicel size and direction in anthesis | 1-4 (-7) mm, ascending | ± 10 mm, subhorizontal, slightly erect to patent | 1-2 cm, ascending | 10-15 mm, patent to slightly ascending | 15-30 mm, patent |
| Tepal size and shape | up to 14 mm, linear-oblong | c. 10 mm, linear (Flora Iranica) 10-16 , lanceolate to oblong (Flora Europaea) | (-9)10-13 mm, oblanceolate to narrow elliptic | 9-11mm, oblanceolate | 10-12 mm, elliptic-obovate (Flora Iranica), 5-12 mm , linear (Flora USSR) |
| Dorsal nerves color of tepals in dried state | brownish to brown-greenish or rarely green | broad or narrow green | green | brownish | pale brown or apparently green (Flora Iranica) not green banded and merely brownish nerved (Flora USSR) |
| Capsule size and shape | 7×4.5 mm, ovate | 12-14 mm, ovate, to ovate-cylindrical or oblong | 10-12 mm, elliptic | 8-10×6-8mm, broad ovate-ellipsoid | 13-14×5-6 mm, ovate |



Fig. 1. *Ornithogalum sanandajense* ($\times 1$); flower and capsule ($\times 2$).

Satureja avromanica Maroofi, **sp. nov.** (Fig. 2).

Affinis ab *Satureja macrosiphonia* Bornm., sed differt caulibus 35-80 cm longis (nec c.30 cm), simplicibus vel parce ramosis (nec virgatis), foliis longis, cuneato-oblongis vel cuneato-obovatis usque lanceolatis (nec parvis, oblongo-linearibus), glandulis flavo-aurantiacis (nec purpureis), verticillastris omnino 3 vel rarius 1-2 floribus (nec uni-vel subunifloribus), calyce 3.5-6.5 mm longo (nec 4 mm), corolla (10-)18-25 (27) mm longa (nec 20-22 mm longa). Affinis ab *Satureja edmondi* Briquet, sed differt caulibus 35-80 cm. longis (nec 15-40 cm.), foliis usque ad 35×6 mm. (nec usque ad 15×5.5 mm.), verticillastris 3 rarius 1-2 floribus (nec 4-6 floribus), calyce pubescenti (nec glabro), corolla tubo calyci usque ad 4-6-polo longiore (nec duplo).

Typus. Kurdistan: Maryvan to Paveh, Belbar village, N 35°, 14', 22.8" E 46°, 17', 31.2", 830 m, 13.10.2004, Maroofi, Mardani & Moradi 7192 (holotypus Kurdistan herbarium; isotypus TARI).

Suffruticose perennial. 35-80 cm. high, many stemmed, slender, nonaromatic, mostly simple or with a few branches, with woody stock and short brachyblasts in leaf-axils, ± angled but not tetragonal, ascending-arcuate to erect, grayish green above, creamy at the middle and brown below, with dense or rather lax papilla and sometimes sparse stipitate glands above, glabrous to sparsely papillose below. Leaves opposite or in fascicles, entire, lax, sessile or subsessile in lower part with petiole up to 1 mm. long, cuneate-oblong to cuneate-obovate or lanceolate, up to 35 mm. long and up to 6 mm. broad, oblanceolate; upper leaves smaller than the lowers, grayish-green, dotted with hyaline yellowish-orange sessile glands and covered by lax or dense papilla, sometimes glabrescent in mature and on lower leaves surfaces, obtuse to subacute, flattened, revolute to involute at the margin; main nerve distinctly prominent. Inflorescence terminal, in lax cymes, main inflorescence longer than the laterals on branches; verticillasters mainly with 3 or rarely 1-2 flowers; pedicels 1-4 mm. long, shorter than the calyx; bracts c.1 mm. long, oblong-ovate, folded lengthwise; bracteoles 2, smaller than the bracts, nearly the same shape. Calyx pubescent, dark purple in the beginning, paler to green later, 3.5-6.5 mm. long, tubular, 2-labiate, sometimes covered with papilla and sessile or stipitate glands on the outside, more or less glabrous inside, 10 veined; teeth of the calyx shortly hairy at the

margin; lower lip teeth 1.7-2 mm., upper c.1 mm. long, subulate-triangular. Corolla pubescent, slender, violet to purplish-lilac, paler below the tube to white, 10-(18-25)-27 mm. long, straight, covered with papilla and sparse yellowish sessile glands, decrease below; inner surface of the middle and lower lobes usually with fasciculate violet hairs; other lobes with sparse whitish papilla; inner surface of corolla tube in lower part of stamens pilose; upper lobes slightly shorter than the lowers; tube without ring of hairs. Stamens 4, included in tube; the anterior pair longer; upper filaments 1.5 and lower filaments 1.8-2.5 mm. long. Anthers sagittate, purplish-violet, 0.5 mm. long. Style shorter than the stamens in the beginning, developed later and exerted from the tube; style branches equal or subequal. Nutlets 4, minutely glandular-hairy above, with obtuse-rounded apex, bright to deep brown, ± smooth, 2×0.9 mm. long, oblong to broadly ovate, with 4-5 nerves in posterior.

Other specimen seen. Kurdistan: Maryvan to Paveh, Belbar village, N 35°, 14', 22.8" E 46°, 17', 31.2", 830 m, 3.11.2002, Maroofi & Shikhi 5650, same place 19.10.2003, Maroofi & Sh. Naseri 6301.

Etymology. The epithet alludes to the locality of collected specimen Avroman area in South-West of Kurdistan province.

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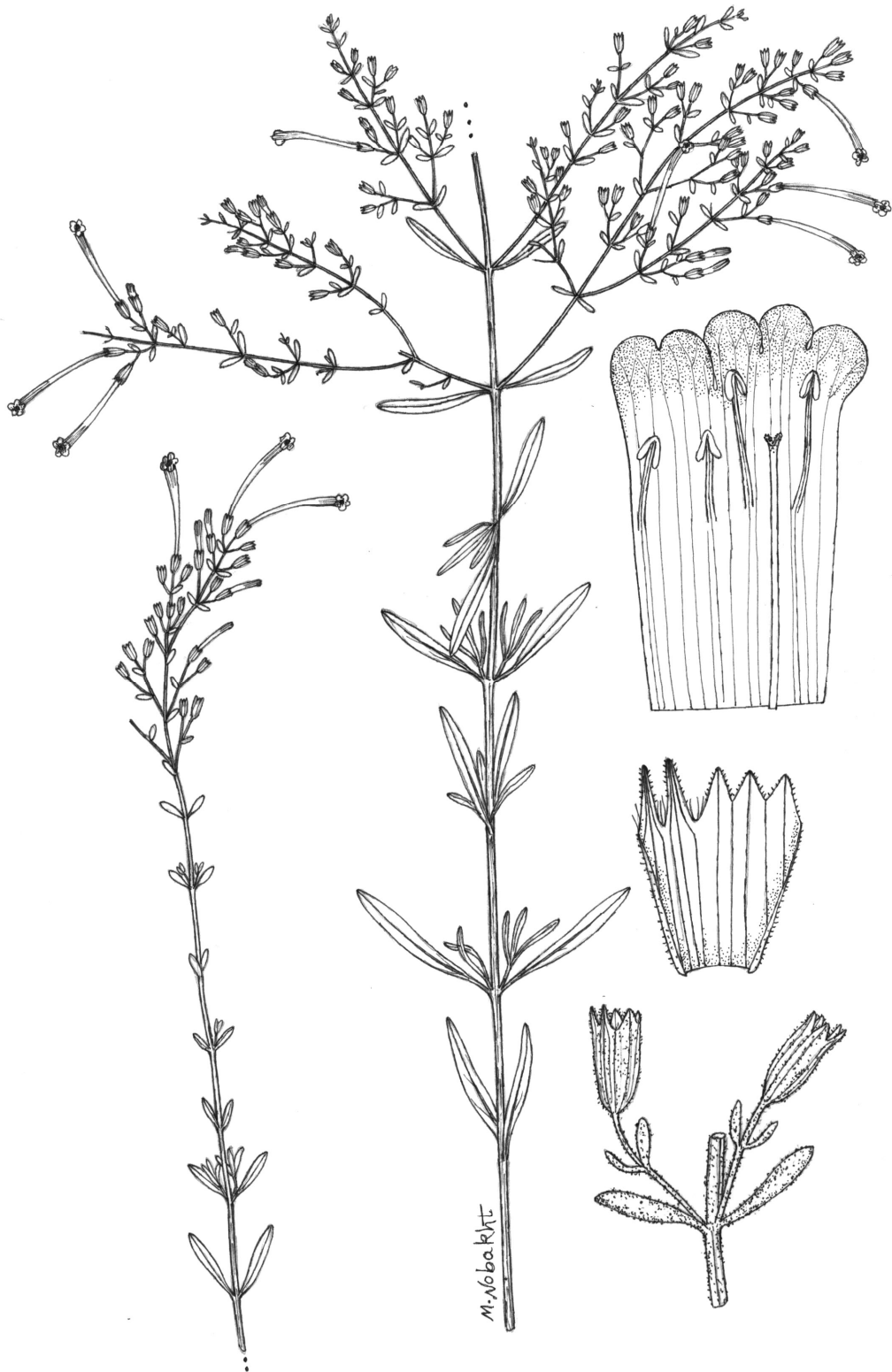


Fig. 2. *Satureja avromanica* ($\times 0.76$); inflorescence ($\times 3$); Calyx ($\times 3.4$); corolla ($\times 2.4$).

