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A NEW SPECIES OF LAPPULA FROM IRAN

WITH NOTES ON THE INFRAGENERIC DIVISION OF THE GENUS

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Lappula semnanensis RIEDL et IRANSHAHR, s p . n.

Annua radice tenui, subfiliformi. Caulis suberectus, 10-12 cm altus, a basi ramosus, patule albo-hirsutus. Folia oblongo-spathulata vel oblongo-lanceolata, infima florendi tempore iam emarcida collum eorum residuis formantia, cetera 10-25 mm longa, 2-4 mm lata, inferiora basin versus subpetiolatim attenuata, media et superiora basi angusta sessilia, omnia acuta vel subobtusata, supra omnino, subtus secus margines et nervum medianum tantum patule hirsuta. Inflorescentia laxa, in parte infima foliis 1-2 instructa, ebracteata. Pedicelli infimi iam fructiferi 8-14 mm longi, haud manifeste reflexi, saepe patuli vel arcuatim ascendentes, indumento ut in caule, sed pili plerumque \pm antrorsi, superiores 1-2,5 mm longi. Calycis floriferi laciniae fere ad basin liberae, usque ad 1,5 mm longae, demum ad 2-2,5 mm elongatae, lanceolatae vel sublineares, subacutae, indumento partium ceterarum. Corolla

azurea, in locis fornicum tantum extra alba striis 2 albidis ad lobos directis continuis, glabra infundibuliformis ad hypocrateriformis, tubo calycem aequans vel eo sesquillongiore, limbo subexplanato 1,5-2 mm in diametro lato, usque ad faucem fere in lobos 5 suborbiculares aestivatione imbricatos diviso. Fornices in fauce inserti semilunares. Stamina minuta, in tubo corollae inclusa. Nuculae 4 inter se aequales vel 1-2 valde reductae, 2,5 mm longae, pyramidato-ovatae, margine tumido laevi vel subtuberculato, disco aculeis, rarissime glochidiis nonnullis ornato. Stylus nuculas 1 mm fere superans, stigma minutum, semigloboso-disciforme, diametro styli vix latius - Species e serie Sinicae M. POP. (= subsectione sensu H. RIEDL) a L. sinica (DC.) ASCHERS. ex SCHWEINF. margine distincto, tumidulo nucarum, foliis multo angustioribus differt; Nucularum forma et superficie L. lipschitzii M. POP. et L. laevimarginata H. RIEDL maxime affinis, a quibus differt disco nucarum aculeato, nec tuberculato, pedicellis inferioribus multo longioribus, a L. lipschitzii praeterea margine nucarum laeviore, a L. laevimarginata foliis longioribus.

Typus: Iran, prov. Semnan: Kuh-e Anjilu, 1600 m. 25.IV.1982.
EGHBALI et MOHAMMADI no.34 A.

Lappula semnanensis RIEDL et IRANSHAHR

Annula with a very slender root. Stems upright, 10-12 cm high, much branched near the base, with patent hairs. Leaves oblong-spathulate to oblong-lanceolate, the lowermost already dry and broken away apart from their bases the remains of which are crowded at ground-level. Lower leaves about 20-25 mm long, 3-4 mm wide, tapering towards the base in a stalk-like manner without forming a distinct petiole, however; upper leaves sessile with narrow base, 10-15 mm long, 2-2,5 mm wide; all the leaves acute or slightly obtuse, covered with patent hairs all over the upper and along margins and main nerve on the lower side. Inflorescence lax, in its lower part with 1-2 leaves,

leafless upwards, without bracts. Pedicels - fructiferous only known in the lower region of inflorescence - 8 - 14 mm long, 10 - 14 mm in most cases, usually not distinctly recurved, patent or slightly ascendent, with patent, usually antrorse hairs, 1 - 2,5 mm long in the uppermost flowers. Calyx upto 1,5 mm long in flower, elongated to 2 - 2,5 mm in fruit, with 5 lanceolate to linear, acutish lobes free to the base, patent-hairy. Corolla dark blue in bud, lighter blue when opening, white with two white lines running upwards towards lobes from each invagination at the places of insertion of the fornicies, funnel-shaped to rotate, tube of same length with calyx or upto 1 1/2 times as long, limb flat or slightly cup-shaped, divided into 5 suborbicular lobes imbricate in bud, 1,5 - 2 mm in diameter. Fornices semilunar, inserted between tube and limb. Stamens inserted much deeper than fornicies, included in the tube, very small. Nutlets 4, nearly equal or 1 - 2 reduced in size, ovate-pyramidate, about 2,5 mm long, with a thickened margin, that is smooth or bears a few tubercles or tiny folds, disc aculeate, rarely with a few glochids. Style surpassing the nutlets for about 1 mm, bearing the small semi-globose stigma, that is scarcely wider than the style as a rule. - The new species belonging to series Sinaicae M. POP. (subsection in RIEDL's sense) is most closely related to L. lipschitzii M. POP. and L. laevimarginata H. RIEDL, but is unique in the spiny disc of its nutlets and the long fruiting pedicels. L. sinaica (DC.) ASCHERS. ex SCHWEINF. has wider leaves and nutlets usually without a distinct margin at all, its lower fruiting pedicels are often recurved.

Type: Iran, Semnan: Kuh-e Anjilu, 1600 m. April 25, 1982.
EGHBALI and MOHAMMADI no.34 A.

The new species was found within the boundaries of the Iranian Great Salt Desert, Dasht-e Kawir, probably as a member of the ephemeral vegetation following rainfall.

Lappula ser. Sinaicae M. POP. comprizes three species in POPOV (1953): the wide-spread L. sinaica (DC.) ASCHERS. ex SCHWEINF., L. lipschitzii M. POP. from Central Asia (Tien-Shan, Pamir-Alai, area round Kuldsha) and L. occultata M. POP. from exactly the same area as L. lipschitzii. L. laevimarginata H. RIEDL (1967) was described from Bamian, Central Afghanistan, and placed as a species incertae sedis. There is little doubt, however, that it has its natural affinities with POPOV's Sinaiceae. L. semnanensis is another species of the same group, which now gains the aspect of a morphologically as well as ecologically well-defined group within the genus Lappula more and more the greater the number of known species is becoming with new collections. L. sinaica is the most wide-spread species ranging from the Sinai-Peninsula to Tien-Shan. It is also most advanced as far as fruit-morphology is concerned. While a separation of margin and disc ist not longer recognizable in most cases, and the whole surface is more or less covered by minute wartlets or tubercles in a uniform fashion, the reduction need not be as complete as that. In specimens called "Echinosperrum Sinaicum var., f. laxa" by BORNMÜLLER from Iran, prov. Kerman, in shady places of Mount Kuh-i Dshupar, Iter Persico-turcicum 1892-93, no.4978, there is a distinct, smooth margin surrounding a concave disc covered by minute tubercles. Growth habit, leaf-shape and pedicels are typically those of L. sinaica. On the other hand, the extreme variability of L. sinaica, that usually has flexuos stams nearly without branches is shown by the collection SINTENIS no.211 from Aschabad, on the mountains near the village Naphton. It is tall, upto 60 cm high, with a stout stem and many branches especially in the lower parts of the stem. Even the pedicels of the lowermost fruits are only about 8 mm long, stiff and fairly thick. The number of flowers in one inflorescence is unusually high, about 17 or 18. The nutlets are warty and slightly rugose as is the rule, no disc or margin can be discerned. Plants called Echinosperrum kotschyi by BOISSIER (KOTSCHY,

Plantae Persiae australis 1845, no.258) are typical L. sinaica in growth-habit and leaf-shape, the nutlets are like those of SINTENIS' collection, the pedicels are short, thick and stiff. Obviously, speciation is still going on within this complex. It is hard to tell where to draw a limit. The various types of nutlets found in L. sinaica well demonstrate the close affinity among the species mentioned the characters of which it combines to a certain degree. It seems justified, therefore, to raise the whole group to the rank of a subsection as has been proposed already by RIEDL (1967). The description should, however, be altered to include also species with aculeate discs of their nutlets. The most important diagnostic feature is the absence of series of spines or glochids along the margin.

Ecologically, all the species are inhabitants either of deserts or semideserts, usually at a little elevated altitudes. The centre of distribution seems to lie from N-Iran and Turcomania eastwards to Mongolia.

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