

***ONOSMA LIMITANEUM* (BORAGINACEAE): A NEW RECORD FOR INDIA FROM JAMMU & KASHMIR**

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Onosma L., a red dye yielding, economically important genus, belongs to family Boraginaceae is comprised of c.150 species in World (Mabberley, 2008). The genus is known to be distributed from Mediterranean region to Himalaya (Iran to Syria, Turkey, Afghanistan, Pakistan, Myanmar, China and India) (Johnston, 1951; Kazmi, 1971). In India, c.15 species, so far reported under this genus, distributed in Himalayas from Jammu & Kashmir, Himachal Pradesh, Uttarakhand to Sikkim. (Hooker, 1881; Chandra Sekar & Srivastava, 2009).

During the course of scrutinizing the specimens of Boraginaceae in the Herbarium of Botanical Survey of India, Dehradun (BSD), for the study and documentation of Flora of Jammu & Kashmir, an interesting specimen of the genus *Onosma* collected by Bipin Balodi (91096) from Leh, Ladakh (Jammu & Kashmir) was found, which was erroneously identified as *Arnebia hispidissima* (Sieber ex Lehm.) A. DC. The study of the specimen with available literature (Hooker, 1881; Johnston, 1952; Stewart, 1916-917 & 1972; Kazmi, 1971; Kachroo & al., 1977; Nasir, 1989) and comparing with the allied species of the genus in BSD, CAL, DD and type images from the herbarium of Forest Research Institute, Dehradun (DD) the identity of the species confirmed to *Onosma limitaneum* I.M. Johnst.

The occurrence of the species is recorded for the first time from India (Ladakh, Jammu & Kashmir) which was otherwise known to occur in Iran, Afghanistan and Pakistan (Johnston, 1952; Kazmi, 1971; Stewart, 1972; Nasir, 1989). The detailed description along with illustrations (Fig. 1) and specimens examined of the species are provided to facilitate the identification and relocation in the field.

Onosma limitaneum I.M. Johnst., J. Arnold Arb. 32: 354. 1951; Riedl in Rechinger, Fl. Iranica 48:185.1967; Kazmi, J. Arnold Arb. 52: 513. 1971; Stewart in Nasir & Ali, Annot. Cat. Vasc. Pl. W. Pakistan & Kashmir 599. 1972. *Onosma limitaneum* var. *parviflorum* I.M. Johnst., J. Arnold Arb. 32: 354. 1951. *Onosma johnstonii* Riedl in Rechinger, Fl. Iranica 48:183.1967. **(Fig. 1.)**

Type : Baluchistan, Fort Sandeman, 18927 (Holo: DD).

Perennial, erect, hispid herb, c.10cm high, with reddish-purple dye stained, thick tap root; stems single or 2, ascendingly branched up to 8cm long, with uniformly, densely covered 0.5 - 2mm long, stiff, white trichomes, intermixed with thick, pungent spreading trichomes, arising from tuberculate bases; lower branches up to 5.0cm long, upper branches up to 7.0cm long. Leaves sessile; basal leaves many, oblong-spathulate to spathulate, 1.2 - 1.6 × 0.3 - 0.4cm, narrowed to dilated at base, obtuse to rounded at apex, revolute at margins, trichomes white, 1.5 - 2mm long, emerging from white tuberculate bases, spreading on both surfaces and margins; cauline leaves alternate, spathulate-oblong to spathulate or oblong-lanceolate, 1.0 - 1.4 × 0.2 - 0.3cm, narrowed at base, obtuse to rounded at apex, trichomes on both the surfaces usually similar as on basal leaves. Inflorescence, congested in terminal or subterminal simple or bifurcate, scorpioid cymes, 1.0 - 1.2cm across; bracts sessile, leafy, linear-oblong or linear-lanceolate, 8 - 10mm long. Flowers pedicellate, tubular, c. 1.2cm long, yellow; pedicels slender, 1-2mm long, densely hispid. Calyx 5-lobed, divided at base; lobes linear-lanceolate, acute, 6 - 8mm long, densely hairy on both the surfaces with white trichomes. Corolla tubular, yellow; tube slender, constricted towards base, 7 - 9mm long; limb 3 - 4mm across, obscurely 5-lobed, lobes triangular, short; throat glabrous. Stamens 5, included; anthers linear, 2 -

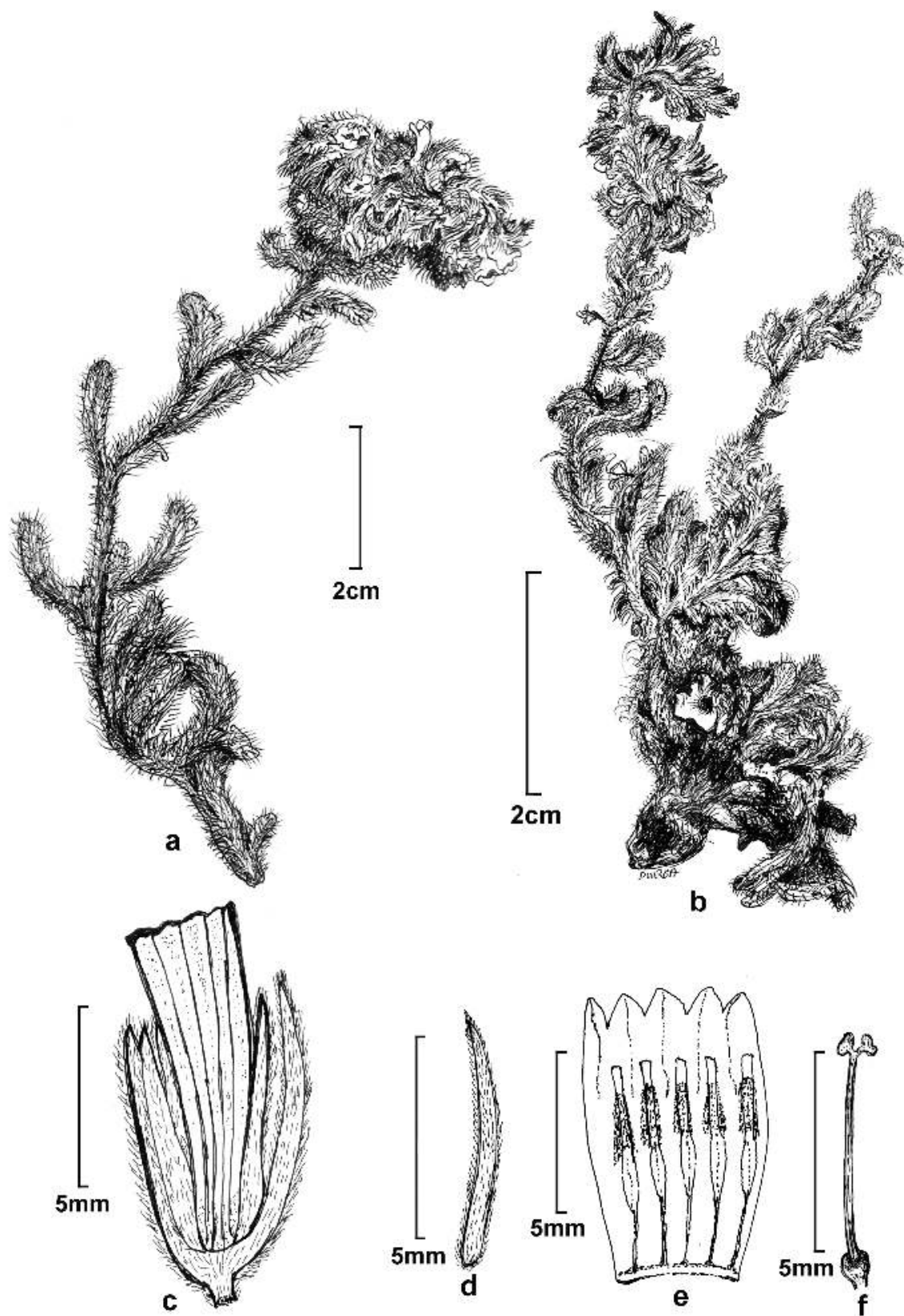


Fig. 1 : *Onosma limitaneum* I.M. Johnst. a. & b. Habit, c. Flower, d. Sepal e. Corolla L.S., f. Style

2.5mm long, attached at below the middle in corolla tube. Style filiform, glabrous, c. 6mm long; stigmas uniform, reniform, compressed, bifid. Nutlets elliptic, brown, 2.5 - 3mm long.

Flowering & Fruiting : August-September.

Habitat : *Onosma limitaneum* was found growing in sandy soil on open dry slopes at an altitude of 3500m.

Distribution : INDIA: Leh, Ladakh, Jammu & Kashmir; IRAN; AFGHANISTAN AND W. PAKISTAN.

Specimens examined : INDIA : Jammu & Kashmir, Ladakh, Leh, 3000m, 12.08.1995, *B. Balodi* 91096 (BSD); AFGHANISITAN: without locality, 1863-64, *Griffith* 5949 (Isotype: DD); Kurram valley, December, 1879, *J.E.T. Aitchison s.n.* (DD). PAKISTAN: Waziristan, 1897, *Harsukh* 15804 a (DD) ; Murdar & Gwal reserve, 1800m, 22.04.1888, *Lace* 3794 (DD); Baluchistan, Gival, 5000-6000ft, 06.05.1893, *A.V. Munro* 112(DD); Mina Bazaar, 1440m, 11.05.1896, without collector's name 18928 (DD); Gastoi, 28.05.1897, without collector's name 20600 a (DD); Kharwande, 09.06.1897, without collector's name 20600 b (DD); Sin Kachh, 12.05.1897, without collector's name 20600 (DD).

Note : The specimens of *Onosma limitaneum* are highly variable in habit, indumentum, shape and size of leaves and inflorescence. I.M. Johnston (1951) described two varieties viz. var. *parviflorum* and var. *mazus* from Iran, Afghanistan and W. Pakistan. Kazmi (1971) in his revisionary account of family Boraginaceae merged var. *parviflorum* under *Onosma limitaneum*. The critical study of the type image procured from Gray herbarium (GH) confirms that var. *parviflorum* should be treated as a synonym of *O. limitaneum*.

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