

DELPHINIUM NORDHAGENII WENDELBO (RANUNCULACEAE)
– A NEW RECORD FOR INDIAN FLORA WITH A NOTE ON
DELPHINIUM NORDHAGENII VAR. *ACUTIDENTATUM* W.T. WANG

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The genus *Delphinium* L. (Ranunculaceae) is represented by 24 species in India, with all the species distributed in the Himalaya (Rau, 1993). During the recent survey in the trans-Himalayan cold desert of Ladakh in Jammu & Kashmir, one of us observed distinct populations of *Delphinium* growing on rocky slopes near Khar Dung La. In these populations, petals were white and upper sepal spur was short, slightly curved, 1/3rd or 1/4th the length of upper sepal (excluding spur) or spur 1/4th or 1/5th the length of upper sepal (including spur). Herbarium consultation revealed the presence of the same characters in all the specimens collected from Ladakh, and housed in the herbarium of the Botanical Survey of India, Northern Circle, Dehra Dun (BSD). All these specimens were identified as *D. brunonianum* Royle, one of the common species of the genus in Western Himalaya. Critical study on these collections revealed more additional characters, viz., straight, usually sparsely hairy outer petal limb and white, membranous lower petals, which were in contrast with the characters observed in the populations of the species growing in Himachal Pradesh and Uttarakhand in Western Himalaya, in which petals were black, sepal spur almost half as long as upper sepal (excluding spur), outer petal limb oblique, glabrous and lower petal limb black, opaque. Literature consultation (Hooker & Thomson, 1872; Stewart, 1916-17, 1972; Munz, 1967-68; Kachroo & al., 1977; Nasir, 1991, Rau, *l.c.*; Wencai & Warnock, 2001; Uniyal, 2002; Zhengyi & al., 2003; Klimeš & Dickoré, 2007-08) including the protologue of *D. brunonianum* (Royle, 1970), which was described based on the specimens from Kunawar (Himachal Pradesh, India) confirmed the identity of the specimens of Himachal Pradesh and Uttarakhand as true *D. brunonianum* and Ladakh specimens, previously referred to this species were turned out to be *D. nordhagenii* Wendelbo, a rare *Delphinium* so far known from the small area in North-West Pakistan (Chitral) and South-West China. The same is described and illustrated here as a new record for India.

Delphinium nordhagenii var. *acutidentatum* W.T. Wang differs from the typical variety in presence of triangular (leaf) lamina teeth in leaf lobes instead of rounded, broadly triangular or deltoid teeth in the typical variety (Wencai & Warnock, 2001; Zhengyi & al., 2003). During the present study it is observed that the specimen collected at Thang Lang La, Ladakh [*U.C. Bhattacharyya* 41028 (BSD)] has broad rounded lamina teeth, characteristic of the typical variety, whereas, other specimen collected at Salpole, Ladakh [*Wadhwa* 59327 (BSD)] has narrow triangular lamina teeth as described in *Delphinium nordhagenii* var. *acutidentatum*. Thus, these specimens represent the presence of both, *Delphinium nordhagenii* var. *nordhagenii* and *Delphinium nordhagenii* var. *acutidentatum* in Indian flora. However, study on the good amount of material of these taxa in BSD herbarium resulted in the conclusion that the character of the shape of leaf lamina teeth is very variable. Presence of different types of leaf teeth (narrow triangular, broad triangular, deltoid or rounded) in different lobes of the same leaf or different leaves on the same plant is vary common. Often upper cauline leaves show narrow triangular teeth and basal leaves shows broad, rounded teeth or sometimes central tooth of each leaf lobe is rounded or deltoid and lateral teeth broad or narrow triangular. Thus, considering the



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continuous range of variations observed in the only distinguishing character for these two taxa, *Delphinium nordhagenii* var. *acutidentatum* is reduced here as a synonym under the typical variety.

Delphinium nordhagenii Wendelbo in Nytt Mag. Bot., Oslo, 3: 227. 1954; Munz in J. Arn. Arb. 48: 489. 1967; Stewart, Ann. Cat. Vasc. Pl. W. Pak. & Kashmir 267. 1972; Y.J. Nasir in S.I. Ali & Y.J. Nasir (eds.), Fl. Pakistan 193: 55. 1991; W.T. Wang, Fl. Reipubl. Popularis Sin. 27: 611. 1979; W. Wencai & M. Warnock in W. Zhengyi, P. Raven & H. Deyuan (eds.), Flora of China, 6: 234. 2001. *D. nordhagenii* var. *acutidentatum* W.T. Wang, Fl. Reipubl. Popularis Sin. 27: 611. 1979; W. Wencai & M. Warnock in W. Zhengyi, P. Raven & H. Deyuan (eds.), Flora of China, 6: 234. 2001, **syn. nov.** (Fig. 1).

Perennial herb, 15–40 cm high; stem erect, purple, sparsely pubescent or strigose below, densely glandular-pubescent above, especially the inflorescence. Leaves simple, alternate, petioled; lamina orbicular or sub-reniform, 3–12 cm across, thick, palmately 3–7-lobed to the middle; lobes obovate, flabellate, lobed and/or dentate, lamina teeth rounded, narrowly to broadly triangular or deltoid, cuspidate, surfaces glabrous above, pubescent beneath and along margins, lamina base apparently funnel-shaped; petiole longer in basal leaves, reduced upwards, up to 15 cm long, grabrescent to sparsely pubescent, petiole base dilated; cauline leaves similar, smaller with petioles reduced above. Inflorescence of simple, terminal 3–10-flowered raceme or terminal and axillary racemes; bracts leafy, petioled, 3-lobed below, sessile, linear-lanceolate to narrowly elliptic, dentate above. Flowers (sepals) blue or purplish blue, 2.5–4.2 cm long, pedicelled; pedicel 1.5–6.2 cm long, glandular-pubescent; bracteoles opposite, green, foliaceous or bluish, lanceolate or oblong-lanceolate, 5.5–22 × 2.8–5.6 mm, distal, attached shortly below the flower, hairy-pubescent. Sepals 5, blue or purplish blue, conspicuously veined, hairy on outer face and along margins, glabrous on inner face; upper sepal hooded, 2.5–4.2 cm (including spur), 1.5–3.4 mm broad, apex acute, obtuse, apiculate, notched, base spurred; spur conical or saccate, straight or slightly downcurved, 5.2–10 mm long (usually less than 10 mm long), 3.5–4.7 mm broad at base; lateral sepals 2, obovate, suborbicular-obovate or broadly elliptic, 2–3.4 × 1–2 cm, apex usually apiculate or obtuse, rarely rounded; lower sepals 2, suborbicular, 2–2.8 × 1.4–2.5 cm, concave, apex apiculate, often notched. Petals 4; outer (upper) petals 2, white or with blue body and white limb, equal, 2–2.8 cm long, narrow, longer than inner petals; limb straight, bilobed; lobes equal to unequal, 1–3.7 mm long, usually

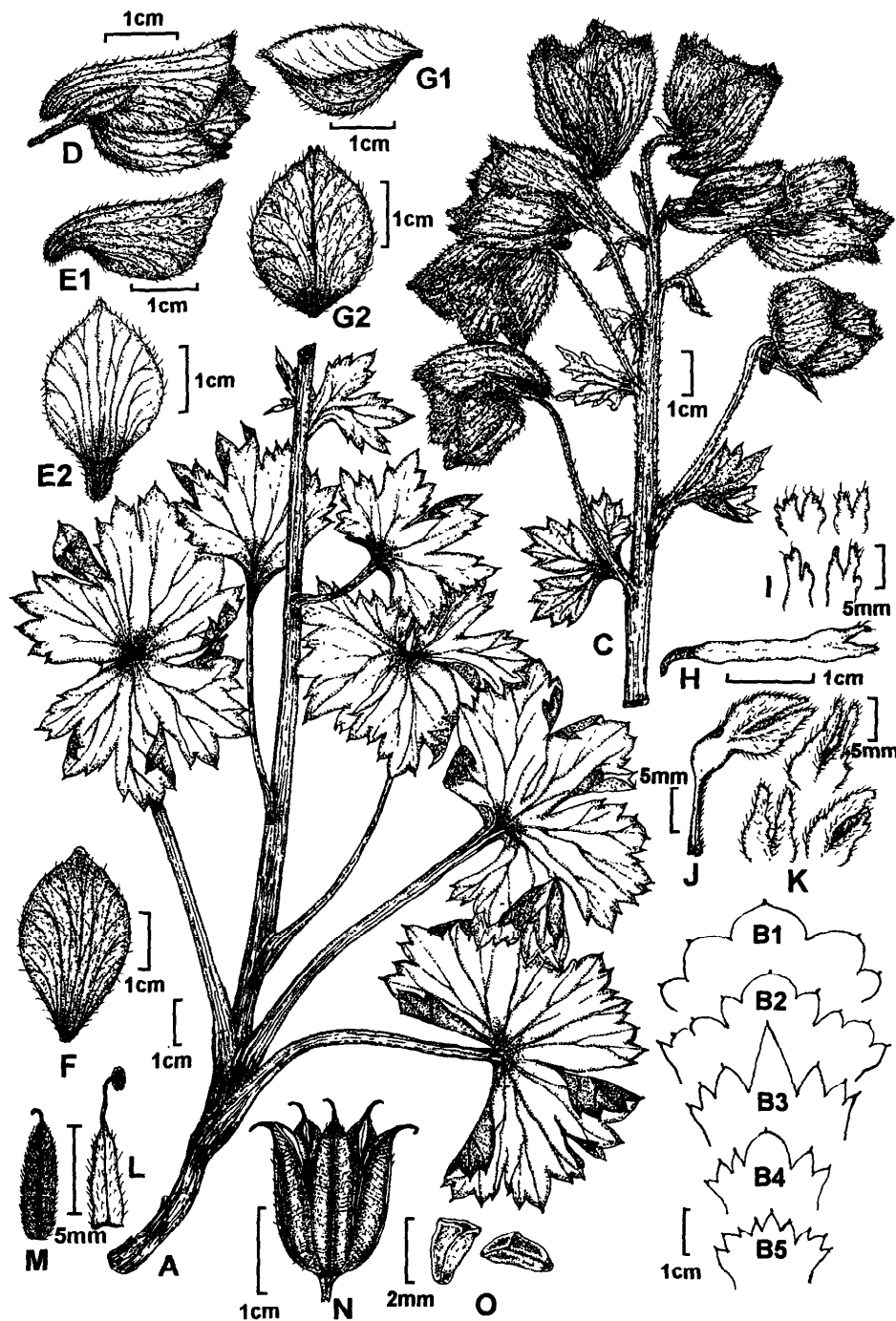


Fig.1. A-O. *Delphinium nordhagenii* Wendelbo :

A. Habit (BSD 60077), **B1-B5.** Leaf lamina teeth variations (drawn from B1: BSD 41028; B2: BSD 59327; B3: BSD 71578; B4: BSD 60077; B5: 86153), **C.** Inflorescence (BSD 74125), **D.** Flower, **E1.** Upper sepal (side view), **E2.** Upper sepal (ventral view), **F.** Lateral sepal, **G1.** Lower sepal (side view), **G2.** Lower sepal (cut open showing outer face), **H.** Upper petal, **I.** Upper petal lobe variations, **J.** Lower petal, **K.** Lower petal lobe variations, **L.** Stamen, **M.** Carpel, **N.** Fruit (capsules), **O.** Seeds.

sparsely hairy, rarely glabrous, outer margins entire, shallowly lobed or dentate; spur narrow, 5–10 mm long, curved, glabrous, darker, enclosed in sepal spur; lower petals 2, white, 1.2–1.8 cm long; limb oblong to ovate, 6–8.3 mm long, straight, oblique or almost at the right angle to the claw, bilobed to half way or 1/3 rd the limb length; lobes lanceolate or oblong-lanceolate, 3–5.7 mm long, equal or unequal with the upper lobe usually longer, hairy on surfaces and along margins; claw auricled, 6–8.7 mm long, slightly broadened at base; hairy on outer face, margins glabrous. Stamens many, 6–10.5 mm long; filaments 5.5–9.3 mm long, base broadened, 3.2–5.2 mm long, hairy, sometimes outer stamens with glabrous filaments and inner with hairy filaments;

anthers oblong, 1 - 1.2 mm long, blue or bluish-black. Carpels 5; ovary elliptic-lanceoid, 4 - 10 mm long, densely pubescent with silky hairs; style short, 1 - 2.2 mm long, curved. Capsules linear, ellipsoid-lanceoid, 2 - 2.7 cm long, with conspicuous sutures, moderately pubescent to glabrescent, apically narrowed to short curved persistent stylar beak, dehiscing by inner suture.; seeds many, small, brown, angular, 3-5-angled, usually quadrate, 1 - 2.2 mm long, glabrous.

Vernacular name : *Chargosposz*.

Fl. & Fr.: July - September.

Common, on open, rocky or boulder-strewn slopes, between 4500-5200 m.

Distribution: India: Jammu & Kashmir, Ladakh; Pakistan: North-West Pakistan, Chitral (Barum Gol, Sher Ghora, Darkot Pass); China: South-West Xinjiang (Hotan Xian), South-West and West Xizang.

Specimens examined : India : Jammu & Kashmir, Ladakh: Thang Lang La, 5000 m., 06.09.1970, *U.C. Bhattacharyya* 41028 (BSD); Ladakh, near Zingral, Tangtse-Leh, 5100 m, 01.09.1975, *M.V. Vishwanathan* 55602 (BSD); Salpole, 4500, 30.07.1976, *B.M. Wadhwa* 59327 (BSD); Pulu, 4660 m, 10.08.1976, *B.M. Wadhwa* 59725 (BSD); Zingral, 4800 m, 27.08.1976, *B.M. Wadhwa* 60077 (BSD); on way to Khar Dung La, 4800 m, 09.08.1980, *U.C. Bhattacharyya* 71578 (BSD); Chang La, 5000 m, 13.08.1980, *U.C. Bhattacharyya* 71642 (BSD); Ladakh, below Khar Dung La, 16.08.1982, *P.K. Hajra* 74125 (BSD); on way to Chang La, 10.08.1988, *H.J. Chowdhery & B.P. Uniyal* 86153 (BSD); South Pullu, 27.07.1995, *B. Balodi* 91017 (BSD); on way to Khar Dung La, 25.07.2002, *D.K. Singh* 101072 (BSD).

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