

Two New Novel Additions to the Flora of Uttarakhand

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Abstract

During floristic exploration in Doon valley and adjacent Shivalik ranges, Uttarakhand two intriguing species belonging to family Convolvulaceae and Polygonaceae were collected and identified as *Ipomoea cairica* (L.) Sweet var. *appendiculata* and *Persicaria pulchra* Sojak. These new collections represent a novel distribution record for Uttarakhand state. We provide detailed description, photographs and location map of the species for easy identification.

Keywords: Doon valley, *Ipomoea*, *Persicaria*, Shivalik Hills, Western Himalaya

Introduction

The Western Himalaya, extended from Kashmir to Kumaon, is an important floristic zone of India (Hooker, 1907; Khullar, 2000) and Uttarakhand been a biodiversity hotspot within. The state spans along three geographical regions i.e., the Tibetan Plateau, the Upper Gangetic Plains, and the Eastern Himalayan Province (Kumar et al., 2012), predominantly composed of mountainous terrain, with a network of rivers and streams shaping its landscape. State shows a majority of its floristic elements originating from the Western

Himalaya, with some influences from the Eastern Himalaya toward the state's eastern boundary. Among floristic and related studies conducted in the state, angiosperms account for about 15% of all research, followed by pteridophytes and gymnosperms (10% each) however, lower plant groups such as lichens and bryophytes remain understudied (6-8%) (Bargali et al., 2022).

Botanical exploration in the state had begun in 1796, when Thomas Hardwicke collected plant specimens from the Alaknanda Valley (Burkill, 1965). Since then, numerous region-specific floras and checklists have been produced

along with many additions and discovery of new species (Duthie 1903–1929; Nautiyal & Nautiyal, 1993; Chaturvedi et al., 2022; Saxena & prasad, 2025). Currently state harbors a rich floristic diversity with over 5,000 species of flowering plants documented to date (Uniyal, 2007). Within the state alpine, subalpine, and temperate regions are relatively well explored for their plant wealth whereas Upper Gangetic Plains and adjacent Siwalik areas are relatively under explored (Bargali et al., 2022). Doon valley and adjacent Shivalik range have contributed to many new additions including endemic plant species in recent years (Kishwan et al., 2024; Rawat & Page, 2024; Naithani & Kishwan, 2022; Chaudhari et al., 2025a,

b), therefore to explore more, routine botanical explorations were carried out in these regions.

Methodology

Frequent field visits were conducted during year 2024-25 in and around Doon valley (Dehradun district) & Shivalik ranges to study species diversity (Fig. 1). During these survey authors came across some interesting plants, for further identification detail photographs of these individuals were taken on field and few specimens were brought for further study purposes. Specimen A, on first inference was identified as *Ipomoea cairica* (L.) Sweet (Convolvulaceae), but the flowers

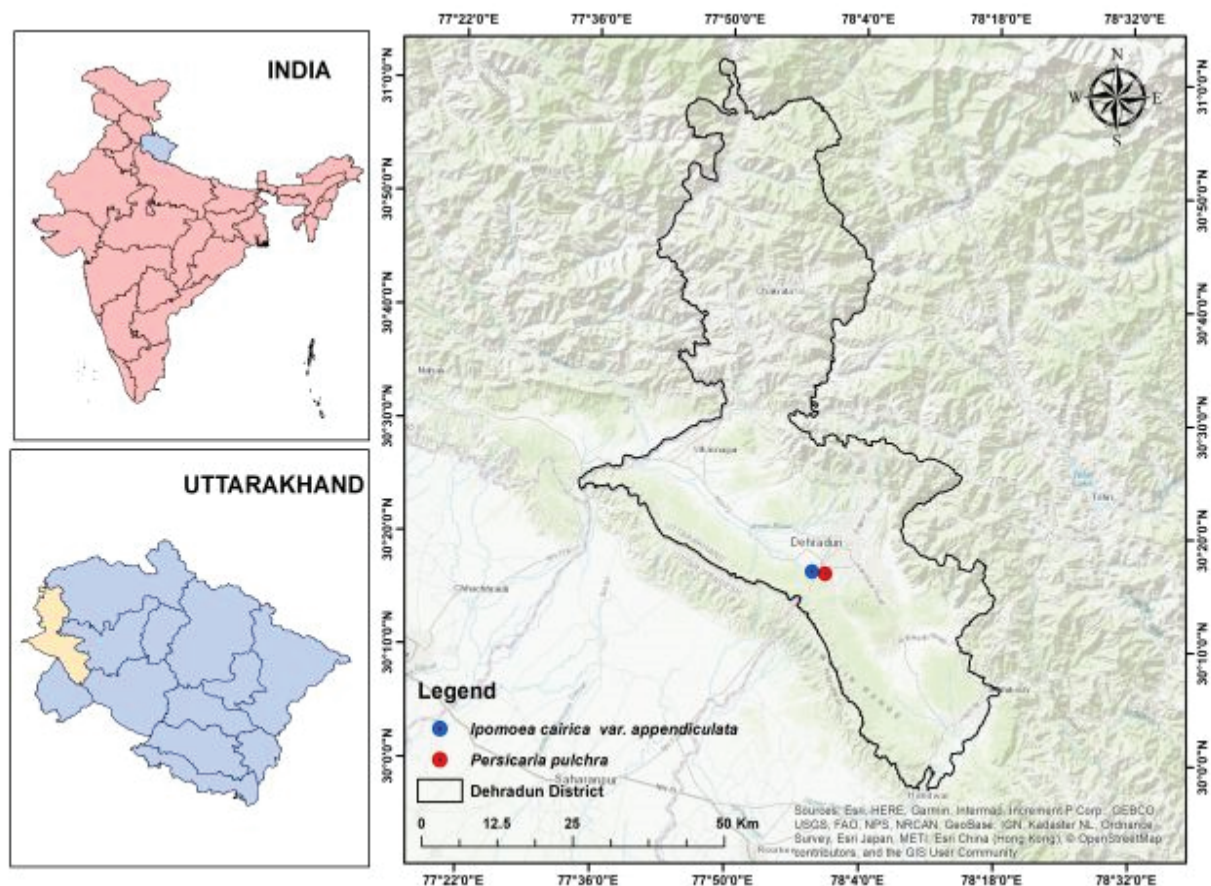


Figure 1. Location map of *Ipomoea cairica* (L.) Sweet var. *appendiculata* Anasuya et al. and *Persicaria pulchra* Soják.

had wing like appendages on outer side of corolla, hence while searching for relevant literature; it was identified as *Ipomoea cairica* (L.) Sweet var. *appendiculata* (Anasuya et al., 2025). Similarly, specimen B, belongs to genus *Polygonum* L./ *Persicaria* Mill., but present specimen was not matching with any species mentioned in Uniyal et al. (2007), further the species was identified as *Persicaria pulchra* Soják (Polygonaceae) on basis of description given in Flora of Uttar Pradesh vol. II (Singh et al., 2020), to confirm record of this species in Uttarakhand state, thorough scrutiny of available literature was done and hence found to be a new distributional record for the state.

Taxonomical description

Ipomoea cairica (L.) Sweet var. *appendiculata* Anasuya et al. (2025) in Plant Science Today Vol.12 (3):1-5.

Perennial climbers up to 7 meters tall, stems cylindrical with tubercles often present. Leaves alternate with petioles 2-5 cm long, cylindrical grooved on one side, sometimes tubercled and glabrous. Lamina palmately divided, 5-7 lobed all unequal with central one longest (3 x 2 cm) and lateral smaller (2 x 1.5 cm). Pseudo-stipules 1-2.2 cm, widens near base. Inflorescence axillary lax cyme up to 1-5 flowered, peduncles 1.5-2.5 cm. Flowers bisexual, pedicels 2-3 cm long sometimes tubercled and glabrous. Bracts minute 0.1-0.3 cm, caducous. Sepals 5, quincuncial, unequal with 2 inner smaller, outer 3 slightly larger than the inner ones 0.2-0.7 x 0.2-0.5 cm and glabrous, ovate to oblong persistent. Corolla 5 campanulate, gamopetalous, plicate, wide open and gradually narrowing near base, purple 1-5 x 2.5-4.1 cm with wing like appendages on outer side of corolla 3-4 cm long. Stamens

5, all unequal, longest one 1.9-2 cm long followed by slight shorter one 1.5-1.6 cm long and other 3 about 1.1-1.3 cm long, epipetalous; anther lobe white, pollen spherical. Gynoecium with bilobed sigma, style 2-2.3 cm long superior with axile placentation; ovary bicarpellary, seeds glabrous.

Flowering and fruiting: October- December.

Habitat: Found growing in shallow waters and seasonally wet places and open spaces.

Distribution: Endemic to India (Karnataka); now reported from Uttarakhand.

Specimen examined: India, Uttarakhand, Dehradun. Lat: 78°0'14.14"E, long: 30°16'40.17"N, Elev: 620 M, Date, Monal R Jadhav 33430 (Fig. 2).

Persicaria pulchra (Bl.) Sojak, Preslia 46: 154 1974. *Polygonum pulcherum* Bl. Bijdr.530.1826; Sant. & Wagh in Bull. Bot. Surv. India 5: 108.1964. *P. tomentosum* Willd. Sp. Pl. 2: 447. 1799. Non Schrank, 1789; Hook. f. Fl. Brit. India 5: 30. 1886; Cooke, Fl. Pres. Bombay 3: 6. 1958 (Repr.). Perennial rhizomatous herbs or subshrubs, 1-1.5 m tall stems erect to prostrate, stout densely pilose with internode 4-12 cm long. Leaves simple alternate, petiole 1-2.2 cm, lamina lanceolate 5.4-14 x 1-2 cm, long apex base and acuminate apex, both surfaces hairy, pubescent above and tomentose beneath, margin entire, ciliate. Ochrea tubular 1.5-2.2 cm densely pubescent and membranous, cilia present 4-6 mm. Inflorescence terminal spikes about 4-7 cm long with numerous flowers. Bracts ovate hispidulous each for 3-4 flower. Flower bisexual, with pedicel longer than bracts. Perianth 5 white, tepals elliptic 2.9-3.2 mm. Stamens 7-8 exceeding the tepals, filaments white, anther lobes white to light pink coloured. Stigma capitate, style two, ovary superior. Achenes black, biconvex and orbicular

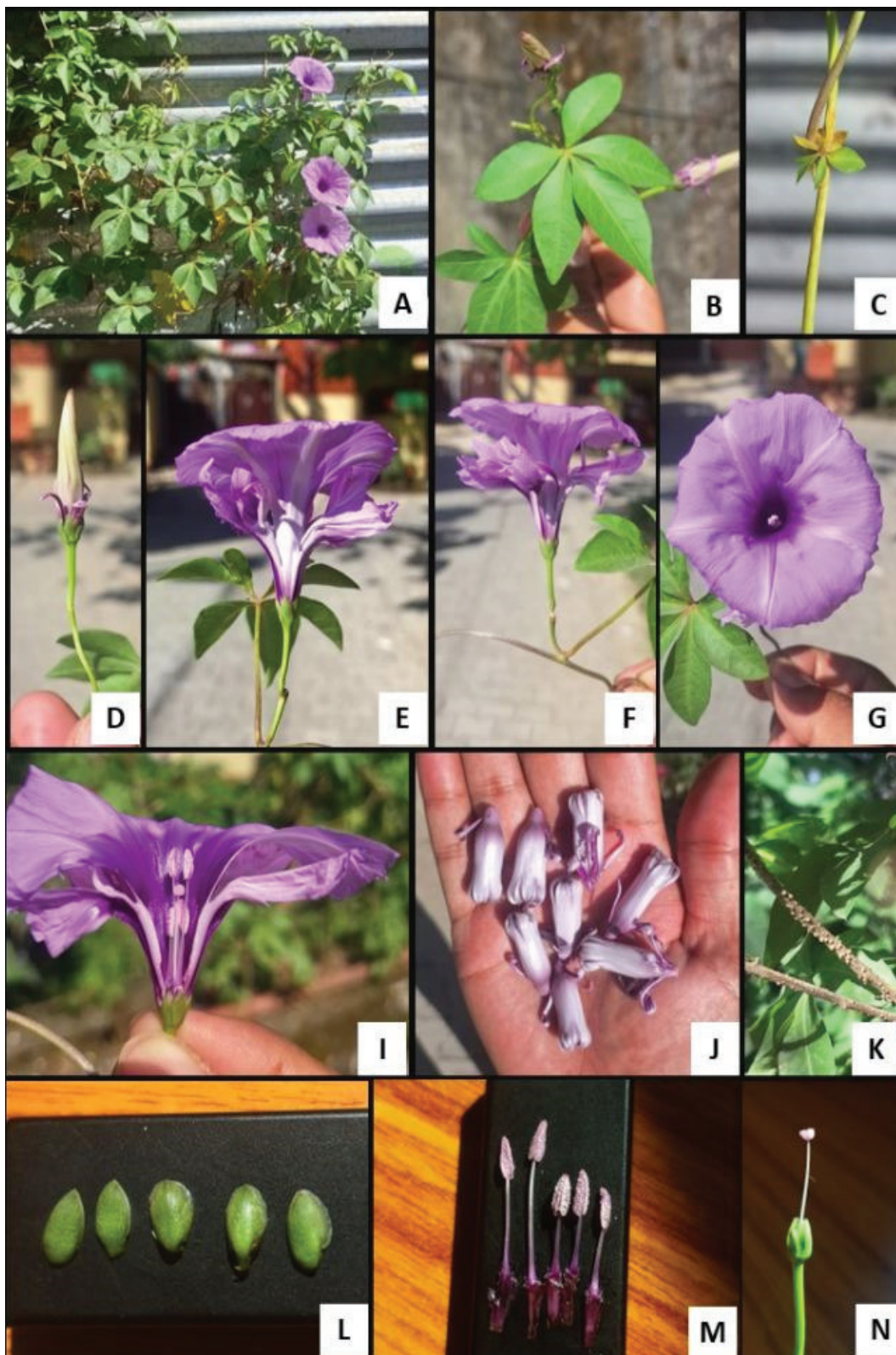


Figure 2. *Ipomoea cairica* (L.) Sweet var. *appendiculata*. A. Habit, B. Leaf, C. Pseudostipules, D. Bud, E, F & G. Flower, I. Dissected flower, J. Dehiscent corolla, K. Tubercled twig, L. Calyx, M. Stamens, N. Gynoecium

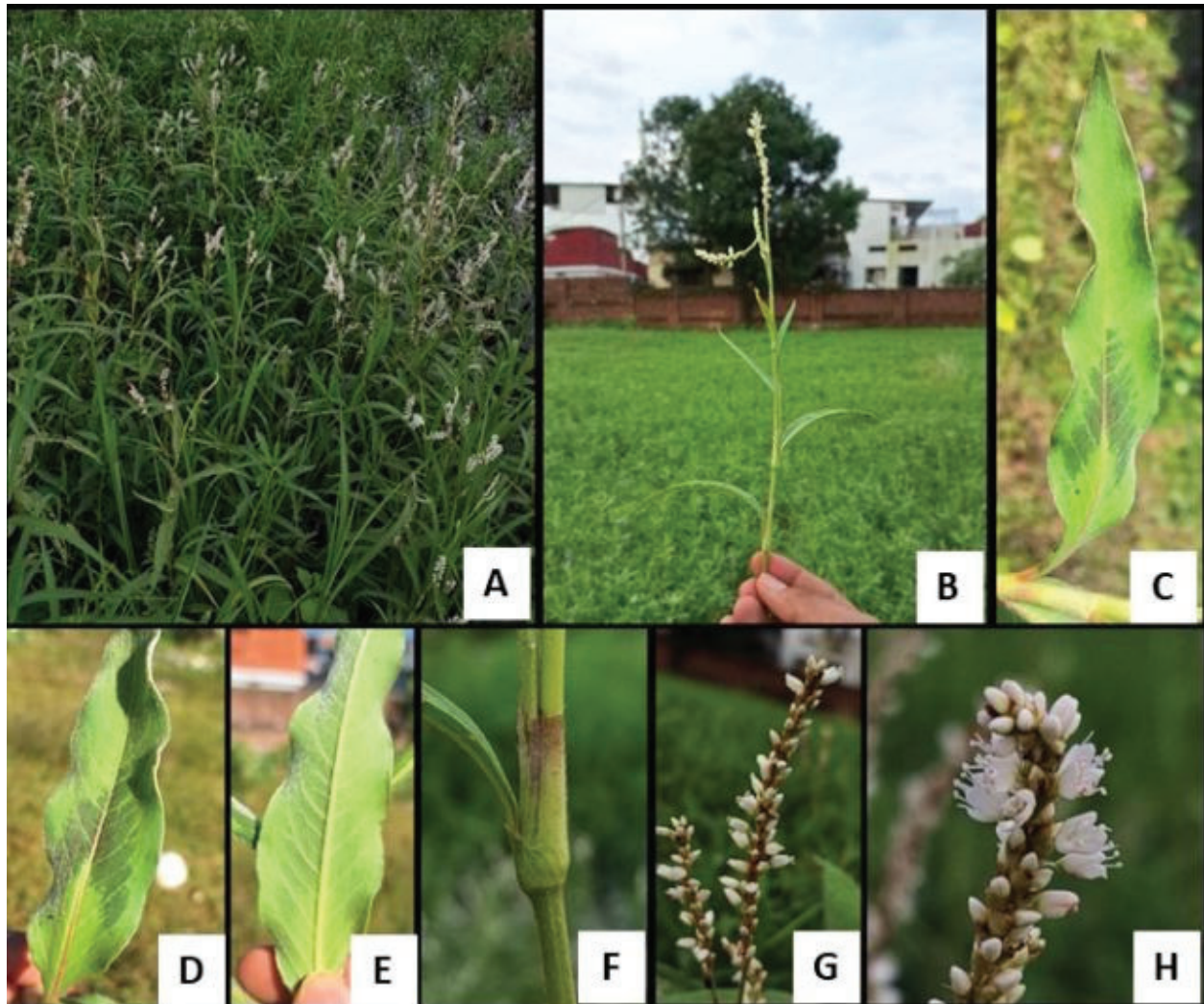


Figure 3. *Persicaria pulchra* Sojak. A. Habit, B. Flowering twig, C. Leaf, D. Pubescent adaxial leaf surface, E. Tomenose abaxial leaf surface, F. Ochrea, G. Iflorescences, H. Flower closeup

shiny.

Flowering and fruiting: July-November

Habitat: Grows in open spaces, forest fringe and waste lands in urban landscape.

Distribution: Asia and south east Asia up to Western and Central Malesia. In India, recorded from Assam, Kerala, Maharashtra, West Bengal, Odissa and Uttar Pradesh (Mao and Dash, 2020; Singh et al., 2020).

Specimen examined: India, Uttarakhand, Dehradun. Lat: 77°58'51.69"E, long: 30°16'51.60"N, Elev: 619 M, 13-10-2025, Monal R Jadhav 33429 (Fig. 3).

Discussion

During our study tours we observed populations of *Ipomoea cairica* (L.) Sweet var. *cairica* and *Ipomoea cairica* (L.) Sweet var. *appendiculata* Anasuya et al. growing sympatrically in urban and semi-urban landscapes. The present article reports first ever occurrence of this species in North India and second report from India. We have also recorded *Persicaria pulchra* Soják, only at an under-construction site. Doon valley is currently undergoing rapid ecological degradation mainly due

to infrastructure expansions, indication shrinkage in natural habitat of native flora as a potential threat for future.

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Conflict of interest: Authors declare no conflict of interest.

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