SHORT COMMUNICATION

UMBRELLA STARWORT *STELLARIA UMPELLATA* TURCZ. (CARYOPHYLLACEAE): A NEW RECORD TO THE FLORA OF THE WESTERN HIMALAYA, INDIA

Satish Chandra & D.S. Rawat

26 March 2018 | Vol. 10 | No. 3 | Pages: 11459-11463
10.11609/jott.3032.10.3.11459-11463
UMBERLLA STARWORT STELLARIA UMBELLATA TURCZ. (CARYOPHYLLACEAE): A NEW RECORD TO THE FLORA OF THE WESTERN HIMALAYA, INDIA

Satish Chandra and D.S. Rawat

1,2 Department of Biological Sciences, College of Basic Sciences & Humanities, Govind Ballabh Pant University of Agriculture and Technology, Pantnagar, Uttarakhand 263145, India

1 satishchandrasemwala07@gmail.com (corresponding author), 2 drds.rawat@yahoo.com

Abstract: The species Stellaria umbellata is reported as a new record for the western Himalayan flora. Critical examination of the species in nature, Indian herbaria, online herbaria and protologue confirmed its identity as Stellaria umbellata. Earlier, it was erroneously identified in the western Himalaya as Stellaria subumbellata or Holosteum umbellatum. This species was previously not reported from the western, central or eastern Himalaya and thus, it is also a new record for the flora of the Himalaya.

Keywords: New record, Stellaria, Uttarakhand, western Himalaya.

The genus Stellaria L. is cosmopolitan in distribution and represented by 120 species in the world and mainly distributed in the northern temperate regions (Mabberley 2008). Stellaria belongs to the Subfamily Alisoideae (DC.) Fenzl and Tribe Alsideae DC. of the family Caryophyllaceae Juss. (Bittrich 1993). This genus occurs in various habitats from the plains to the alpine regions, often in shady locations or on rocky slopes. In India, the genus is represented by 19 species distributed from the temperate to the alpine regions (Majumdar 1993; Pusalkar & Srivastava 2015; Sekar & Srivastava 2007). It is characterized by extipulate leaves, free sepals, bipartite petals varying from mid to base, and fruit a dehiscent capsule, opening by valves twice as many as styles.

Stellaria umbellata Turcz. is a Siberian species first described from the Baikal mountain of Siberia (Turczaninow 1842). Now it is known to occur in China, North America, Russia and Kazakhstan (Shishkin 1936; Shilong & Rabeler 2001; Morton 2005) inhabiting high mountain peaks, alpine zones, montane grasslands, forests and steppes. The species flourishes in elevation ranges of 1,000–2,800 m in North America, 1,600–3,800 m in China and present in alpine and subalpine zones in Russia (Shishkin 1936; Shilong & Rabeler 2001; Morton 2005). This species was not reported from the western Himalaya (Pakistan, Jammu & Kashmir, Himachal Pradesh, Uttarakhand), central Himalaya (Nepal) and the eastern Himalaya (Sikkim, Bhutan, Arunachal Pradesh) (Ghazanfar & Nasir 1974; Chowdhery & Wadhwa 1984; Grierson 1984; Majumdar 1993; Hajra et al. 1996; Srivastava 1998; Press et al. 2000; Majumdar 2002; Uniyal et al. 2007). Taxonomically, S. umbellata belongs...
Stellaria umbellata - new record to western Himalaya
Chandra & Rawat

Material and Methods
The specimens were collected from different localities of Uttarakhand (the western Himalaya) and deposited at G.B. Pant University Herbarium, Department of Biological Sciences, CBSH Pantnagar, Uttarakhand, India (GBPUH). Herbarium specimens of the Indian western Himalaya housed in the herbarium of the Forest Research Institute (DD) and Botanical Survey of India Northern Circle (BSD) were also thoroughly examined. The specimens were identified by relevant literature on Stellaria umbellata (Turczaninow 1842; Schischkin 1936; Shilong & Rabeler 2001; Morton 2005). These were also compared with digital images of specimens of the species housed in the New York Botanical Garden (NY), Royal Botanical Garden Kew (K) and National Museum of Natural History Paris (P).

Stellaria umbellata (Image 1)

Herb, perennial. Stem slender, branched, ascending, 5–15 cm long, glabrous, hairy near the base of distal 2–3 leaf pairs. Trichomes multicellular, uniseriate, nonglandular, 250–800 µm long. Leaves elliptic–oblong, 3–13 × 2–7 mm, distal 2–3 leaf pairs larger than proximal leaves, apex acute–obtuse, both surfaces glabrous, proximal leaves subsessile, distal leaves sessile, leaf base hairy in distal 2–3 leaf pairs. Flowers in terminal umbellate cyme, flowers 3–7, subtended by scarious bracts; peduncle long, slender, glabrous. Bracts 3–7, ovate–lanceolate, unequal, 1.5–2.5 × 0.5 mm, glabrous, margins broadly scarious. Pedicel 5–20 mm long, slender, glabrous, curved in fruits. Flowers minute, apetalous. Sepals 5, ovate–lanceolate, 2–3 × 1 mm, glabrous, veins 3, margin scarious, scarcely serrate. Petals absent. Stamens 5–10; if 5 present all fertile, if 10 present then either all fertile or 2–4 staminodes, unequal in length, antisepalous larger than alternisepalous stamens, shorter than sepals, anther yellow. Ovary ovoid–oblong, 1.5–2.5 mm; styles 3, 0.75 mm long. Capsule ovate–oblong, 3–4 mm, 1.5–2 times longer than persistent sepals, open by six valves, dehiscing up to the base. Seeds 3–8 per fruit, suborbiclar–oblong, compressed, surface smooth, brown (Fig. 1 A–N).

Flowering: August–September.

Fruiting: September–October.

Specimens examined: India, Uttarakhand: Garhwal, Chamoli District, Roopkund area, near Jurangali, 30.264166670N & 79.735833330E, 4,700 m, 01.ix.2014, coll. D.S. Rawat & Satish Chandra s.n. acc. no. 800 (Govind Ballabh Pant University Herbarium Pantnagar, Uttarakhand, India); Rudraprayag, Kedarnath, Madhuganga valley, 4,500 m, 30.749166670N & 79.043333330E, 03.x.2007, coll. D.S. Rawat & Satish Chandra s.n. acc. no. 801 (Govind Ballabh Pant University Herbarium Pantnagar, Uttarakhand, India).
**Figure 1. Stellaria umbellata Turcz.**

A - plant habit, B - upper leaf pair, C - upper leaf, D - lower leaf, E - sepal, F - bracts in inflorescence, G - bract, H - open flower, I - gynoecium, J - fruit, K - fruit enclosed within sepals, L - seeds, M - trichomes arrangement on stem near upper leaf base, N - eglandular trichome.

University Herbarium Pantnagar, Uttarakhand, India (Image 2); Uttarkashi District, Base camp, 4,725m, 27.ix.1967, B.D. Naithani 37469 (BSD!); Kedar Dome area, 5,400m, 1.x.1967, B.D. Naithani 37419 (BSD!); on way to Kedarkharak, 6.vii.2003, P.K. Pusalkar 103889 (BSD!); Kumaon, Pithoragarh District, Ralam Valley, 4,500m, 29.viii.1884, J.F. Duthie 2755 (DD!); Ralam Pass, 4,572m, 29.viii.1884, J.F. Duthie 000723649 (K Image!); Byans Valley, Kutti-Yangti Valley near Gohnika Lake, 4,500m, 7.ix.1884, J.F. Duthie 2755 (DD!); Lebung Pass, 5,100m, 6.ix.1884, J.F. Duthie 2755 (DD!); Nan Hatti-Chhota Hathi, 4,800m, 19.vii.2004, G.S. Rawat 14559 (Herbarium of Wild Life Institute of India Dehradun!).

Stellaria umbellata - new record to western Himalaya

Chandra & Rawat

Morphological variation within species

The species *S. umbellata* shows remarkable morphological variations according to geographical regions. In the Baikal mountains in Russia and in China plant height of the species commonly reaches up to 5–15 cm, while in Indian and North American populations it may reach up to 20 cm and 40 cm respectively. The shape and size of leaves are also variable. In Russian populations leaves are 5–15 × 2–7 mm, elliptic - oblong, apex acute-acuminate and proximal leaves are smaller than the distal leaves but in the North American population leaves are 3–9 cm × 1–3 mm, elliptic - lanceolate, somewhat succulent and all leaves are almost equal in length. Numbers of flowers in terminal cymose umbel are 3–10 in Russian, Chinese and Indian populations but extend up to 20 in North American populations. Number of stamens ranges in the species from 5–10. In North American populations five stamens are recorded while 10 stamens are present in Russian and Chinese population. In Indian population the number of stamens ranges from 5–10. If five stamens are present then all are fertile, if 10 stamens are present then either all are fertile or 2–4 are staminodes (Turczaninow 1842; Shishkin 1936; Shilong & Rabeler 2001; Morton 2005) or a different and distinct species.

Erroneous identification

Some specimens from Uttarakhand, India housed in BSD (37469, 37419, 103889) are erroneously identified as *S. irrigua*.
Stellaria umbellata - new record to western Himalaya
Chandra & Rawat

as Holosteum umbellatum L. whereas H. umbellatum is a very different species of large size forming cluster of leaves at stem base, with distinct petals longer than sepals, and seeds being shield-shaped and minutely bumpy (Ghazanfar & Nasir 1986; Shilong & Rabeler 2001; Sadeghian et al. 2014).

CONCLUSION

Plants collected during this study and specimens of species from the western Himalaya (housed in DD and BSD herbaria) have 3–7 unequal scarious bracts and smooth seed surface, hence fulfil all the characters of S. umbellata. The species S. umbellata is a new record for the flora of the Himalaya and India. The genus Holosteum is present only in Jammu & Kashmir in India and absent in Uttarakhhand.

REFERENCES


Communications

The status of Nepal’s mammals

The bat fauna (Mammalia: Chiroptera) of the United Arab Emirates: a review of published records and museum specimens with conservation notes
-- J. Judas, Gabor Csorba & Petr Benda, Pp. 11379–11390

Investigating Sri Lanka’s human-monkey conflict and developing a strategy to mitigate the problem

A checklist of bird communities in Tamhini Wildlife Sanctuary, the northern Western Ghats, Maharashtra, India
-- Dhananjay Chavan Vinayak & Subhash Vitthal Mali, Pp. 11399–11409

Spatial and temporal patterns of stork sightings (Aves: Ciconiidae) in National Chambal Sanctuary of Gangetic River system

The Red-headed Falcon Falco chicquera Daudin, 1800 (Aves: Falconiformes: Falconidae) breeding on Palmyra Palm at Bahour Lake, Puducherry (Pondicherry), India
-- Raveendran Lekshmi & Surendhar Boobalan, Pp. 11416–11422

Fish diversity and the conservation status of a wetland of Cooch Behar District, West Bengal, India
-- Ram Krishna Das, Pp. 11423–11431

Seasonal distribution and abundance of earthworms (Annelida: Oligochaeta) in relation to the edaphic factors around Udupi Power Corporation Limited (UPCL), Udupi District, southwestern coast of India

Breeding behaviour of the Coromandel Marsh Dart Damselfly (Zygoptera: Coenagrionidae: Ceriagrion coromandelianum (Fabricius)) in central India

Short Communications

A Babbler’s tale: assessing the distribution of Turdoides striata (Dumont, 1823) (Aves: Passeriformes: Leiothrichidae) in India
-- Nishikant Gupta & Gautam Talukdar, Pp. 11450–11453

Extension in its distribution range and a new record for the cicada genus Salvazana Distant, 1913 (Hemiptera: Cicadidae: Cryptotympanini) from India
-- Sudhanya Ray Hajong & Rodeson Thangkiew, Pp. 11454–11458

Umbrella Starwort Stellaria umbellata Turcz. (Caryophyllaceae): a new record to the flora of the western Himalaya, India
-- Satish Chandra & D.S. Rawat, Pp. 11459–11463

First record of fungus Cryptomarasmius T.S. Jenkinson & Desjardin (Physalacriaceae: Agaricales: Basidiomycota) from India
-- Arun Kumar Dutta & Krishnendu Acharya, Pp. 11464–11469

Folliculous fungi on medicinal plants in Thiruvananthapuram District, Kerala, India
-- A. Sabeena, V.B. Hosagoudar & V. Divaharan, Pp. 11470–11479

Notes

Pternopetalum latipinnulatum (Apiaceae), a new record for the flora of India
-- Licha Jeri, Nazir Ahmad Bhat & Yogendra Kumar, Pp. 11480–11483

Five new additions to the grass flora of Tripura State, India
-- Sampa Ghosh & Debiyoti Bhattacharyya, Pp. 11484–11492

Response

A preliminary but incomplete checklist of Gujarat spiders
-- R.V. Vyas & B.M. Parasharya, Pp. 11493–11494

Miscellaneous

National Biodiversity Authority