

RESEARCH ARTICLE

Addition of *Cyclospermum leptophyllum* (apiaceae) to the flora of Shamli and Saharanpur, Uttar Pradesh

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Abstract: While exploring the angiosperms of Shamli district and adjoining areas, authors collected *Cyclospermum leptophyllum* (Apiaceae), a Central and South American aromatic plant from Shamli and Saharanpur districts. After reviewing its distribution through flora and available literature, it has been found that this taxon is a new record for the flora of Shamli and Saharanpur districts. A detailed taxonomic description of this species along with digital images and specimen examined are presented in the paper.

Key Words: Apiaceae, new record, Uttar Pradesh

Introduction

The Apiaceae (or Umbelliferae) is a plant family comprising at the present time 466 genera and about 3800 species (Plunkett *et al.* 2018). The Apiaceae are widely distributed almost all over the world from temperate to subtropical and tropical regions. Asia accommodates the largest generic diversity with 289 genera, 177 of which are endemic (Plunkett *et al.* 2018). In India, the family is represented by 68 genera and 240 species, distributed in different parts of country (Mukherjee and Constance 1993). The family Apiaceae is represented by 11 genera, 17 species and 2 varieties from Upper Gangetic Plain (Duthie 1903-1929). Genus *Cyclospermum* Lag. (Syn. *Ciclospermum* Lag.), native to tropical and temperate America, is represented by three species (<http://www.plantsoftheworldonline.org/>). Recently while exploring Shamli and Saharanpur districts, the authors collected specimens of *Cyclospermum*. The specimens were collected near Thana Bhawan town where two canals of the Ganga River meet. During intensive botanical exploration of Shamli district and adjoining areas, a few plant specimens were also collected from Rampur tehsil,

Saharanpur district, Uttar Pradesh near a water body.

On critical examination of the relevant literature (Clarkson *et al.* 2021, APG IV, 2016, Bahadur *et al.* 1973, Constance 1990, Malik *et al.* 2012, Khatun *et al.* 2010, Lalita Saini *et al.* 2021, Murty and Singh 1964, Tayal and Bhasin 1970, Wyk and Tilney 2004, Wu *et al.* 2005, Clarke 1879, Nasir 1972) and matching with the specimens housed in DD herbarium (accession number 138264), our specimen was identified as *Cyclospermum leptophyllum* (Pers.) Spargue ex Britt. & P. Wilson (Apiaceae).

After thorough detailed study of its morphological characters and consultation of relevant literature, regional floras and other research works (Khanna 2017, 2018, Khanna *et al.* 1999, Malik 2015, Kumar and Malik 2016, Gupta and Singh 1986) have shown that hitherto, there is no published record of this species from district Shamli and adjoining areas.

Sprague (1925) observed that *Apium leptophyllum* F. Muell ex Benth. (Syn. *Cyclospermum leptophyllum* (Pers.) Spargue ex Britt. & P. Wilson) is native to America and commonly occurs in woods and in sandy soil. He also observed that it occurs also as a weed of cultivated and waste ground and by roadsides in

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Bermuda, the West Indies, Mexico, Central America, the Andes, Brazil and Paraguay. It is a non-native and rare weed in the study area, probably native to subtropical areas of Central and South America. However, it has spread to both subtropical and temperate areas throughout the world (www.illinoiswildflowers.info/weeds/plants/fir_celery.html).

Raizada (1931) made additions to Duthie's flora of the Upper Gangetic Plains from the neighborhood of Dehradun and collected *Apium leptophyllum*, a weed in cultivated places. A critical scrutiny of the relevant literature revealed that this species has been collected from Mussoorie by Saxena in 1967 and C.R. Babu in 1977. In 2008, Adhikari and Babu collected and reported this species during the study of floral diversity of Bannganga Wetland, Uttarakhand.

Taxonomy: *Cyclospermum leptophyllum* (Persoon) Sprague ex Britton & P. Wilson, Bot. Porto Rico 6: 52. 1925.

Synonym: *Pimpinella leptophylla* Persoon, Syn. Pl. 1: 324. 1805; *Aethusa leptophylla* (Persoon) Sprengel, Mag. Neuesten Entdeck. Gesammten Naturk. Ges. Naturf. Freunde Berlin 6:260.1812; *Apium leptophyllum* (Pers.) F. Muell, Fragm. 4: 184. 1864; *Apium leptophyllum* F. V. Mueller ex Benth, Fl. Australia 3: 372.1866; *Selinum leptophyllum* (Persoon) E. H. L. Krause ex Sturm, Deutschl. Fl. Abbild., ed.2, 12: 38.1904.

Vernacular name (s): Jangli Gajjar

Morphology and Ecology

An annual or biennial, erect or decumbent-ascending, glabrous herb, 1-2 ft. high. Stem slender, spreading to erect, much-branched, ribbed. Leaves radical and cauline, alternate, two to three pinnate with linear-filiform segments. Basal leaves, with white to brown membranous sheaths; alternate; petiolate; petiole 2-5 cm; lamina bi-tripinnatisect, 2-10 × 2-8 cm; ultimate segments narrow, linear to filiform, mucronate, slender. Cauline leaves alternate; pinnately decompose; sub-sessile or sessile; petiole 0.2-0.5 cm; lamina decompose; ultimate segments 1.2-1.6 cm; linear to filiform, glabrous, mucronate. Inflorescence axillary leaf opposed and terminal branched, compound umbel, 2-3.5 cm across, with 2-3 (-5) rays, 1-2cm long,

sessile or on 1-1.5 cm long peduncle; umbellules 5-23 flowered; pedicels 0.2 -4.0 mm, unequal, the central flower often almost sessile, without bracts and bracteoles. Flower small, bisexual, 5-merous, whitish pink or white. Calyx very small, greenish-green, adnate to ovary, teeth obsolete, conspicuous or inconspicuous. Corolla lobes ovate or oblong, acute, epigynous, with a short inflexed tip, margins not re-curved, scarcely imbricate, midrib inconspicuous. Stamens 5, epigynous, free, spreading, alternate. Carpels 2, ovoid, syncarpous, ovary inferior, bilocular, styles 2, swollen at the base forming a stylopodium, stigmas sessile or capitate. Fruit a dry schizocarp, 2 indehiscent dorsally or laterally compressed carpels, each mericarp 1-seeded, with 4 or 5 primary ribs. Mature seeds brown; 1.5- 2.0 × 1.5-1.8 mm, ovoid or ellipsoid, globose, flat or concave on one side, other side convex and conspicuously ribbed & thick, almost corky (Fig-1).

Flowering & Fruiting: April - July.

World distribution: Native of central & South-America, Australia & New-Zealand; widely naturalized in tropical regions of the world.

Indian distribution: Cultivated for uses in herbal medicine in Andhra Pradesh, Gujarat, Madhya Pradesh, Karnataka etc. Found in wild in Haryana, Kerala, Himachal Pradesh, Uttarakhand etc.

The Associated species: The plant occurs in open barren sandy soils, near water course and boundaries of cultivated field in the study area. The plant is found associated with *Beliospermum solanifolium* (Burm.) Suresh, *Imperata cylindrica* (L.) P. Beauve., *Dichanthium annulatum* (Forssk.) Stapf, *Centaurium pulchellum* (Sw.) Hayek ex Hand.-Mazz., *Hydrocotyle sibthorpioides* Lam., *Ranunculus trilobus* Desf., *Cynodon dactylon* (L.) Pers., *Sisymbrium irio* L., *Alternanthera philoxeroides* (Mart.) Griseb. *Apluda mutica* L., *Sonchus arvensis* L. etc.

Specimens examined: INDIA. Uttar Pradesh State. Shamli district, Mormajra village, 15 May 2022, Saharanpur district, Islamnagar village, Amit Kumar 267 & 268 (Janta Vadic College, Baraut, affiliated to CCS University Meerut, Uttar Pradesh-250611, India).

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