



Original Research Article

New distributional record of *Toricellia tiliifolia* DC. (Toricelliaceae) from Chamoli Garhwal, Uttarakhand, India

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Abstract: During the recent floristic explorations in Gairsain area of district Chamoli (Uttarakhand), the authors spotted the population of *Toricellia* growing in Oak-mixed forest. Critical examination of the specimen in the herbarium (BSD & DD) and through literature surveys revealed the plant as *Toricellia tiliifolia* DC. of family Toricelliaceae. A detailed description of the species has been given and reported here as new record to Garhwal Himalaya.

Key Words: Gairsain, Garhwal Himalaya, Oak-mixed forest, *Toricellia tiliifolia*, Toricelliaceae.

Introduction

District Chamoli in Garhwal Himalaya with its rich and varied flora has attracted the attention of plant explorer since long past. After the work of Hooker & Thomson (1855), the significant plant exploration from the area was done by Naithani (1984-85) in "Flora of Chamoli" with 1943 species. Gairsain is one of the nine developmental blocks of district Chamoli which has rich vegetational diversity. Most of the forest area of Gairsain comes under the Lohba Range of Kedarnath Forest Division (Rawat *et al.*, 2013). Authors observing the flora of this region since 2010, came across *Toricellia tiliifolia* DC. during exploration, and collected the voucher specimens for herbarium with relevant field data. Critical examination of the specimen in the herbarium (DD) and through literature surveys revealed the plant as *Toricellia tiliifolia* DC. of family Toricelliaceae. Though the species has been reported from Kumaon by Osmaston (1927), it has not been recorded from Garhwal Himalaya by earlier workers (Duthie 1906; Raizada & Saxena 1978; Kala & Gaur 1982, Naithani & Tiwari 1982-83; Sharma & Gaur 1983, Naithani 1984-85; Gaur 1999, etc.). Thus, the species forms a new distributional record in Garhwal Himalaya as well as addition to the flora of Chamoli district. The voucher specimen has been deposited at the herbarium of H.N.B. Garhwal University, Srinagar Garhwal, Uttarakhand (GUH 20733).

The genus *Toricellia* is represented by 2 species, *T. angulata* Oliv. being endemic to China and *Toricellia tiliifolia* DC. distributed in

Darjiling, Sikkim and Kumaon. Besides India, *Toricellia tiliifolia* DC. is distributed in Bhutan, China and Nepal. The genus was first described by de Candolle (1830) who named it after an Italian naturalist, physicist and mathematician Evangelista Torricelli. It was placed in family Cornaceae by earlier workers, but in recent classifications it has been attributed to separate family (Toricelliaceae). In the present study the plant was observed in Panichhoya and Painsar forests of Gairsain, Chamoli. The Panichhoya forest is 10 km west to the Gairsain town on the right flank of river Ranganga while Painsar is 5 km towards east on the left flank of Ramganga. The plant had fair presence in Panichhoya forest between the altitudes 1700 to 2200m asl, while only few individuals were recorded in Painsar forest at 1900-2100m.

Taxonomic description

Toricellia tiliifolia de Candolle, Prodr. 4: 257. 1830; C.B. Clarke in Hook f. Fl. Brit. India. 2: 748. 1879; Osmaston, For. Fl. Kumaon 270. 1927. Polunin & Stainton, Fl. Himalaya, 163. 1884. (Figure 1).

Small deciduous tree, 4-5 m, rarely reaching up to 10 m high with spreading branches, bark rough pale-brown. Leaves crowded to the end of branch, alternate, petiole 5-10 cm, base 3-nerved, broadly ovate, orbicular to angled, 15-20 x 10-15 cm, dentate, acuminate, turn yellowish before shedding. Flowers numerous in long terminal panicles. Male flowers green-brown with short calyx tube; bracteate, petals 5, oblong,

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stamens 5. Female flowers green turn purple when mature, calyx tube short, stigmas 3-5, ovary 3-5 celled. Fruit, 0.5 cm long, ovoid, green-purple, glabrous, crowned by short stigmas.



Figure 1: *Toricellia tiliifolia* DC. (A) Habit, (B) Flowering twig and (C) Female inflorescence.

Flowering and Fruiting: March-May and June-September.

Specimen examined: GUH 20734 (H.N.B. Garhwal University Herbarium, Srinagar Garhwal, Uttarakhand), 14 June, 2014 collected by Dinesh Singh Rawat.

Distribution: Panichhoya and Painsar forests, (Gairsain, Chamoli), 1700 to 2200 m asl.

Ecology: Not common, shady moist localities, Oak-mixed forest in association with *Acer cappadocicum*, *Daphniphyllum himalense*, *Ilex dipyrena*, *Lyonia ovalifolia*, *Quercus leucotrichophora*, and *Rhododendron arboretum*.

Note: The plant locally known as *Kairu* or *Kedu* and the inhabitant lop the young branches as bedding material for cattle (in rainy season) and collect litter for compost (in winter). Wood is used to make agricultural implements and tools.

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