



## A REVIEW ON HAPLANTHODES VERTICILLATA

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### Abstract:

Acanthaceae is one of 24 groups of blooming plants in the mint request (Lamiales). Spiny Bottle Brush is a tall, annual plant that only grows about half a meter tall. Oval, narrow, oppositely arranged leaves have a length of 5-10 cm. The leaves have two spinous teeth at the tip and are covered with long spreading hairs. Stalkless flowers are found in the leaf axils, crowded near the stem's peak. The blossoms, which seem to have five petals, really have just two petals which are 2 and 3 lobed. The flowers have a throat that is a light green and are dark blue in color. Ordinarily tracked down on rough slants in the Western Ghats. Flowering: November-January. Plants play a significant role in traditional medicine's treatment of many conditions.

**Keywords:** Acanthaceae, spiny bottle brush, haplanthoda, plants, applications

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**INTRODUCTION****Acanthaceae family:**

Acanthaceae is one of 24 families of flowering plants in the mint order (Lamiales). It has about 220 genera and nearly 4,000 species, most of which are found in tropical and subtropical areas of the world.<sup>1,2</sup> Most of the Acanthaceae family are spices or bushes, however plants and trees happen too. Although the majority of these plants can be found in humid tropical forests, the range of habitats includes everything from marshes and estuaries to extremely dry environments.<sup>3,4</sup>

Acanthaceae is a diverse family with few common traits among its members. Most have basic leaves organized in inverse matches, with cystoliths (developed cells containing gems of calcium carbonate) in streaks or projections in the vegetative parts.<sup>5</sup> The sexually unbiased blossoms are much of the time respectively even and are generally encased by leaflike bracts, frequently shaded and huge. Each of the five or four petals often fuses together to form tubular structures. Beyond the flower's mouth, there are typically two to four stamens with one to three staminodes (sterile stamens). The pistil is predominant (i.e., situated over the connection point of the other blossom parts) and by and large comprises of two

combined carpels (ovule-bearing portions) encasing two locules (chambers), every one of which has two to numerous ovules in two lines along the focal pivot of the ovary. Typically, the fruits are capsules that explode and contain seeds that are carried by hooks on the placenta.<sup>6-9</sup>

The endemic Indian genus *Haplanthodes* (Acanthaceae) is revised. Four species, viz. *H. neilgherryensis*, *H. plumosa*, *H. tentaculata* and *H. verticillata* and a new variety, *H. neilgherryensis* var. *toranganensis* are recognized. Lectotype is designated for *Haplanthodes*, *Haplanthus plumosus* and *H. verticillaris*.<sup>10,11</sup>

Spiny Bottle Brush is an erect annual herb, growing to only about half meter high. oppositely arranged ovate narrow leaves are 5-10 cm long. The leaves have two spinous teeth at the tip and are covered with long spreading hairs. Stalkless flowers occur in the leaf axils, densely concentrated near the top of the stem. The flowers, which appear to have five petals, actually have only two petals which are 2 and 3 lobed. The flowers are dark blue in color and have a light green in the throat. Commonly found on rocky slopes in the Western Ghats. Flowering: November-January.<sup>12-15</sup>



**Fig.1: Haplanthoda verticillata plant**

**CLASSIFICATION:**

**Kingdom** : Plantae - Plants

**Phylum** : Tracheophyta

Examples: Ferns, gymnosperms, & angiosperms  
Vascular plants – have vascular tissue (xylem & phloem)

**Subkingdom** : Tracheobionta - Vascular plants

**Superdivision** : Spermatophyta - Seed plants

**Division** : Magnoliophyta - Flowering plants

**Class** : Magnoliopsida – Dicotyledons

Embryo usually with two cotyledons, sometimes one, rarely with three or four. Cotyledons commonly with three vascular bundles. Leaves mostly petioled. Venation typically reticulate, either pinnate or palmate, and mostly not closed (with free vein endings). Leaf traces 1–3, seldom more. Prophylls and bracteoles are usually paired. Plumule terminal. Vascular bundles usually arranged in a ring, seldom in two or more rings or scattered. The root system mostly that of a tap root from which side branches arise. The root cap and epidermis mostly of a common ontogenetical origin. Plants woody or herbaceous, frequently secondarily arborescent. Epicuticular wax

ultrastructure mostly of Aristolochia-type, but in Winteraceae and Canellaceae they are of Berberis-type. Plastids of the sieve elements of S-type or less often of P-type. Flowers mostly 5- or (less frequently) 4-merous and only in some mainly archaic groups 3-merous. Floral nectaries of various types but never septal or nectaries absent. Pollen grains typically triaperturate or of triaperturate-derived type, except in some archaic families, where they are distally uniaperturate or rarely biaperturate. The class Magnoliopsida includes 8 subclasses, 125 orders, c. 440 families, almost 10,500 genera, and no less than 195,000 species.

**Subclass:** Asteridae

Inflorescences of involucre heads (capitula) of 1-  
◆ florets on a common receptacle surrounded by phyllaries; pappus often present; corolla united and 5-lobed; stamens 5, forming a cylinder around the style; ovary with 2-style branches and uniloculate with a single ovule.

**Order :** Scrophulariales

Scrophulariaceae, the figwort family, includes some 65 genera and 1,800 species. These herbs or shrubs include genera such as *Verbascum* (mullein, with about 360 species), *Scrophularia* (200 species), and *Buddleja* (butterfly bush, with 125 species). Some of these, such as the mulleins, have the same number of stamens as petals.

The genera *Eremophila* (215 species) and *Myoporum* (about 30 species) consist of trees and shrubs native to Australia and the Pacific. The related tree *Bontia daphnoides* is an ornamental species from the Caribbean region. The members of these three genera were formerly placed in Myoporaceae and are characterized by strongly bilaterally symmetric flowers. Most have leaves with pellucid dots

**Family :** Acanthaceae - Acanthus family

Acanthaceae, one of 24 families in the mint order (Lamiales) of flowering plants, containing approximately 220 genera and nearly 4,000 species distributed predominantly in tropical and subtropical regions of the world. The greater part of the Acanthaceae family are herbs or shrubs, but vines and trees occur as well.

**Genus :** *Haplanthodes*

*Haplanthodes* is a genus in the plant family Acanthaceae. It is endemic to India.

**Species :** *Haplanthodes verticillata*

**PHARMACOGNOSTIC CHARACTERISTICS:**

**Botanical name:**

*Haplanthodes verticillata* (Roxb.)R.B.Majumdar (= *Haplanthus verticillata*(Roxb.) Nees, = *Justicia verticillatus*, *Bremekampia verticillata*(Roxb.) Sreem.)

**Common name:** Spiny Bottle Brush

**Gujarati:** કાળું કરિયાતું *kalu kariyatu*

**Hindi:** काला किरियात *kala kiriyat*, कस्तुला *kastula*

**Konkani:** काळें किरायतें *kalem kiraytem*

**Marathi:** जकारा *jakara*

**Tamil:** ஒட்டு முடி குறிஞ்சி *ottu mudi kurinji*

**Synonyms:** *Justicia verticillata*, *Eranthemum verticillatum*, *Haplanthus verticillaris*

homotypic synonyms: *Bremekampia verticillata* (Roxb.) Sreem. • *Eranthemum verticillatum* (Roxb.) Spreng.

• *Justicia verticillata* Roxb. ...

heterotypic synonyms: *Dianthera verticillaris* (Nees) Stehlé & M.Stehlé • *Haplanthus verticillaris* Nees ... POWO ... and, *Haplanthus verticillatus* (Roxb.)

**Vernacular name:**

*Jakara*, *Kateri*.

**Family :**

Acanthaceae

**Threatened category:**

Low risk (Gaikwad & Yadav, 2004)

**Key characters:**

Flowers clustered in the midst of axillary cladodes, Corolla-lobes imbricate in bud, Cladodes quadrangular, more than 1 cm long , capsules compressed, glabrous.

**Chemical constituents:**

- Vanillic acid
- 4-hydroxybenzoic acid
- Vitexin
- Isovitexin

**Plant parts and methods of its use**

Roots : Extracts taken orally

**Description:**

Spiny Bottle Brush is an erect annual herb, growing to only about half meter high. oppositely arranged ovate narrow leaves are 5-10 cm long. The leaves have two spinous teeth at the tip and are covered with long spreading hairs. Stalkless flowers occur in the leaf axils, densely concentrated near the top

of the stem. The flowers, which appear to have five petals, actually have only two petals which are 2 and 3 lobed. The flowers are dark blue in color and have a light green in the throat. Commonly found on rocky slopes in the Western Ghats. Flowering: November-January.

Glandular herbs, stout, pubescent, axillary branches reduced to cladodes. Cladodes 4-angled, with 2, short spinous teeth at apex, pubescent. Flowers sessile. Corolla bluish-violet. Stamens 2, included. Capsules slightly compressed, acute, glandular hairy at the apex. Seeds rugose, hygroskopically hairy.<sup>16</sup>

**Flowering and fruiting:**

December- June.

**Distribution:**

Assam, Bihar, Goa, Karnataka, Madhya Pradesh, Maharashtra, Odisha, Rajasthan, Tamil Nadu, West Bengal, endemic to India

**Localities:**

Throughout Maharashtra -Ahmednagar, Dhule, Jalgaon, Kolhapur, Nanded, Nasik, Parbhani, Pune, Raigad, Ratnagiri, Satara, Sindhudurg, Yavatmal.<sup>17</sup>

**Ecology:**

Quite common in shady moist places and rock crevices of forests. Altitude ranges between 300-1200m above sea level.<sup>18</sup>

**Association:**

No specific plant association is observed, but grows among grasses and other herbs.

**Ailments cured:**

- Diabetes
- Heart disease
- Piles
- Kidney
- Urinary disorders

**APPLICATIONS:**

Traditional medicines rely heavily on plants to treat a wide range of ailments. In order to find a bioactive molecule, this study selected *Haplanthodes neilgherryensis* (Wight) R.B. Majumdar (*H. neilgherryensis*) from the endemic Western Ghats flora.<sup>19,20</sup> The family *Haplanthodes* is one of the 49 recognized endemic genera of Angiosperms in India disseminated chiefly in the Western Ghats area. The herb *H. neilgherryensis* has quadrangular upper ends on slender, glandular stems. The outline of the leaves is oval (5–10<sub>3</sub>–5

cm), decurrent at the base, and acuminate at the apex. Sessile in the middle of axillary spines gathered at the ends of branches, the blue or lilac flowers are sessile. In traditional medicine, only a few species of *Haplanthodes* are used to improve stamina and heal wounds.<sup>21,22</sup> A flavanone glycoside, haplanthin has been separated from this plant and furthermore viewed as in another species called *Haplanthus tentaculatus*. The flavonoids that were extracted from *H. neilgherryensis*, their structure, and their ability to increase glucose uptake in L6 rat skeletal muscle cells are all described in this report.<sup>23-25</sup>

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