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***Pogostemon Stellatus* (Lour.) Kuntze (Lamiaceae) - A New Record  
From Assam, North East India**

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**ABSTRACT**

*Pogostemon stellatus* (Lour.) Kuntze is a newly recorded species from Barpeta district of Assam for the flora of North-East India. Previously, *Pogostemon stellatus* (Lour.) Kuntze was reported from some parts of Meghalaya (Khasi Hills and Garo Hills) of North East India but not from Assam. A detailed taxonomic treatment along with illustration and images is provided for its identification.

**KEY WORDS:** New record, *Pogostemon stellatus*, Lamiaceae, Assam.

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## INTRODUCTION

Genus *Pogostemon* Desfontaines belongs to the tribe Pogostemoneae of the family Lamiaceae. It is one of the largest genus of the tribe *Pogostemoneae*. *Pogostemon* is characterized by the presence of exserted stamens bearing moniliform hairs, that make it distinguished from other Lamiaceae, Hasskarl 1842<sup>1</sup>, Kuntze 1891<sup>2</sup>, Press 1982<sup>3</sup>, Bhatti & Ingrouille 1997<sup>4</sup>. The highest species diversity was found in the India subcontinent, Bhatti and Ingrouille, 1997. The genus is distributed primarily in the Southeast Asian countries Harley *et. al.*, 2004<sup>5</sup>. Beyond this main distribution, a few species are also distributed in Northern Australia, Japan and the Korea, Bhatti and Ingrouille, 1997; Harley *et. al.*, 2004; Yao *et. al.*, 2015<sup>6</sup>.

*Pogostemon stellatus* (Lour.) Kuntze was earlier reported from Meghalaya Khasi Hills and Garo Hills Mao *et. al.*, 2016<sup>7</sup>. However taxonomic assessment and detail study of the species in North east India including Assam is not explored till date Kanjilal 1939<sup>8</sup>.

*Pogostemon stellatus* (Lour.) Kuntze is a aquatic or semi-aquatic herb, 0.3-0.6 m high. *P.stellatus* is variable in characters like stem slim with long internodes or strong with short internodes, leaves in whorls of 4-8. *P.stellatus* was treated as conspecific with *P.verticillatus* by many authors, Miquel 1856<sup>9</sup>, Kuntze 1891, Doan 1936<sup>10</sup>, Panigrahi 1984<sup>11</sup>, Wu & Huang 1977<sup>12</sup>, Li & Hedge 1994<sup>13</sup>, but Hooker<sup>14</sup>, 1885 & Bhatti & Ingrouille, 1997 treated them as independent species. They indicated that *P.stellatus* can be distinguish from *P. verticillatus* by the characters like stem decumbent or creeping at base, leaf margin revolute and calyx teeth erect.

During the floristic survey in the Barpeta- Assam (26. 3216° N, 90.9821° E) a plant was collected from a marshy area that was, later on, identified as *Pogostemon stellatus* (Lour.) Kuntze of Lamiaceae. The species has been recorded from wet/moist muddy soils along river banks, usually on seasonally flooded ground. Literature survey indicated that the occurrence of this species in Assam was not recorded earlier. However, these are Asiatic species and are distributed in Eastern and Southeastern Asia. For the flora of Assam the species is presented here with detailed taxonomic description, distribution, illustration and photographs to facilitate the identification.

## METHODOLOGY:

### ***Study Area, Collection and Preservation:***

To work out on the present study and to bring out the taxonomic account, extensive field survey was carried out by visiting various areas of Assam. During field survey specimen was collected in their flowering stages. Efforts were made to study the specimens on the spot and their natural habitats. Spot photographs were taken.

### **Identification and Nomenclature:**

The specimens were identified with the help of relevant literatures and herbaria. (ASSAM, CAL, GUBH, BSI, Eastern Circle, Shillong). In determining names of taxa, effort has been made to give upto date nomenclature by consulting various states, national and international literatures and verified by online database of Plant list for Angiosperm version 1.1 www. plant. list<sup>15</sup>.

### **Description:**

A detail description of the taxa was recorded. Based on the description a brief taxonomic account, remark on occurrence, habitat and habit of species along with the illustration were also provided.

### **TAXONOMIC TREATMENT:**

*Pogostemon stellatus* (Lour.) Kuntze, Revis. Gen. Pl. 2: 429.1891. *Mentha stellata* Loureiro, Fl, Cochinch. 2: 361. 1790. *Dysophylla stellata* (Lour.) Bentham (1830:30). *Eusteralis stellata* (Lour.) Panigrahi (1976:474). *Anuragia stellata* (Lour.) Raizada (1976:218). *Mentha quadrifolia* B. Heyne ex Roth (1821:256). *Dysophylla verticillata* Bentham, Pl. Asiat.Rar.1:30. 1830. Hooker f., Fl. Brit. India 4:639.1885; Prain, Beng. Plants 2: 635.1903; Kanjilal et al., Fl.Assam 3: 514. 1939. *Anuragia verticillata* Bentham. *Mentha verticillata* Roxburgh(1832:5), *nom. illeg*, non *Mentha verticillata* Don (1825:114). *Pogostemon verticillatus* Bhatti & Ingrouille (1997:115). *Dysophylla benthamiana* Hance (1866:234) var *hainanensis* C.Y. Wu & S. J. Hsuan in Wu et al., (1965:238). *Dysophylla stellata* (Lour.) Bentham var *hainanensis* (C.Y.Wu & S. J. Hsuan) C.Y. Wu & H. W. Li in Li (1975:77).

Annual herb about 14-60 cm high, stem erect solid, strong or slim terrete with internodes, stem sometimes hairy, many branches in tall plant; leaves 4-9, in whorls appear on nodes of stem, linear to slightly lanceolate, pointed, 2-8 cm, margin entire or serrulate, apex acute, lateral vein inconspicuous; Inflorescence a terminal spike upto 5.5cm long and 5.5mm broad, continuous and compact.; Bract linear-lanceolate longer than calyx, 1.5mm ; calyx campanulate 1- 1.4mm long, teeth 5, teeth hairy; corolla purple, 1.5- 1.9 mm long exserted, straight, sub- equally 4 tube; upper and lower lip hairy outside; stamen 4, exserted filaments all inserted at a height of  $\pm$  1.5mm , bearded portion slightly exserted from corolla, middle densely hairy with  $\pm$  0.5mm long moniliform hairs ; anthers rounded, broad, dark black; style  $\pm$  1.7mm - 2.1mm long, stigma bifid, lobes sub equal; Fruit: nutlet.

**Flowering:** Nearly whole year. **Common Name:** Water Star

**Uses:** *Pogostemon stellatus* (Lour) Kuntz flowers are use for medicinal (febrifuge), cultural and spiritual healing purpose and leaves are used as mosquito repellent (M. Franco, 2008). Needle shaped leaf used in aquarium as Aquascaping.

**Exsiccatae:** Barpeta (Assam) , *Chayanika Bordoloi* 12442 dated 10.09.2016 (GUBH).

**Habitat:** Common in rice fields, wet areas along stream and pools.

**Global distribution:** It is reported from tropical to warm regions of southern and southeast Asia (Moody 1989, Cook 1996), including India (e.g., Mumbai, Karnataka, Mysore, Chennai; Bhatti and Ingrouille 1997), Bangladesh, Lao PDR (Andersen *et al.* 2006, Newman *et al.* 2007).



**Figure 1. Habitat of *Pogostemon stellatus* (Lour.) Kuntze, herb of about 14-60 cm high, 12442 from Barpeta , District, Assam, India.**



**Figure 2. Inflorescence of *Pogostemon stellatus* (Lour.) Kuntze, a terminal spike of 5.5 cm long.**



**Figure 3.** *Pogostemon stellatus* (Lour.) Kuntze, a sessile, linear, leaf, 5.9 cm long with acute apex.



**Figure 4.** *Pogostemon stellatus* (Lour.) Kuntze, stamen bearded with moniliform hairs (Under Microscope).

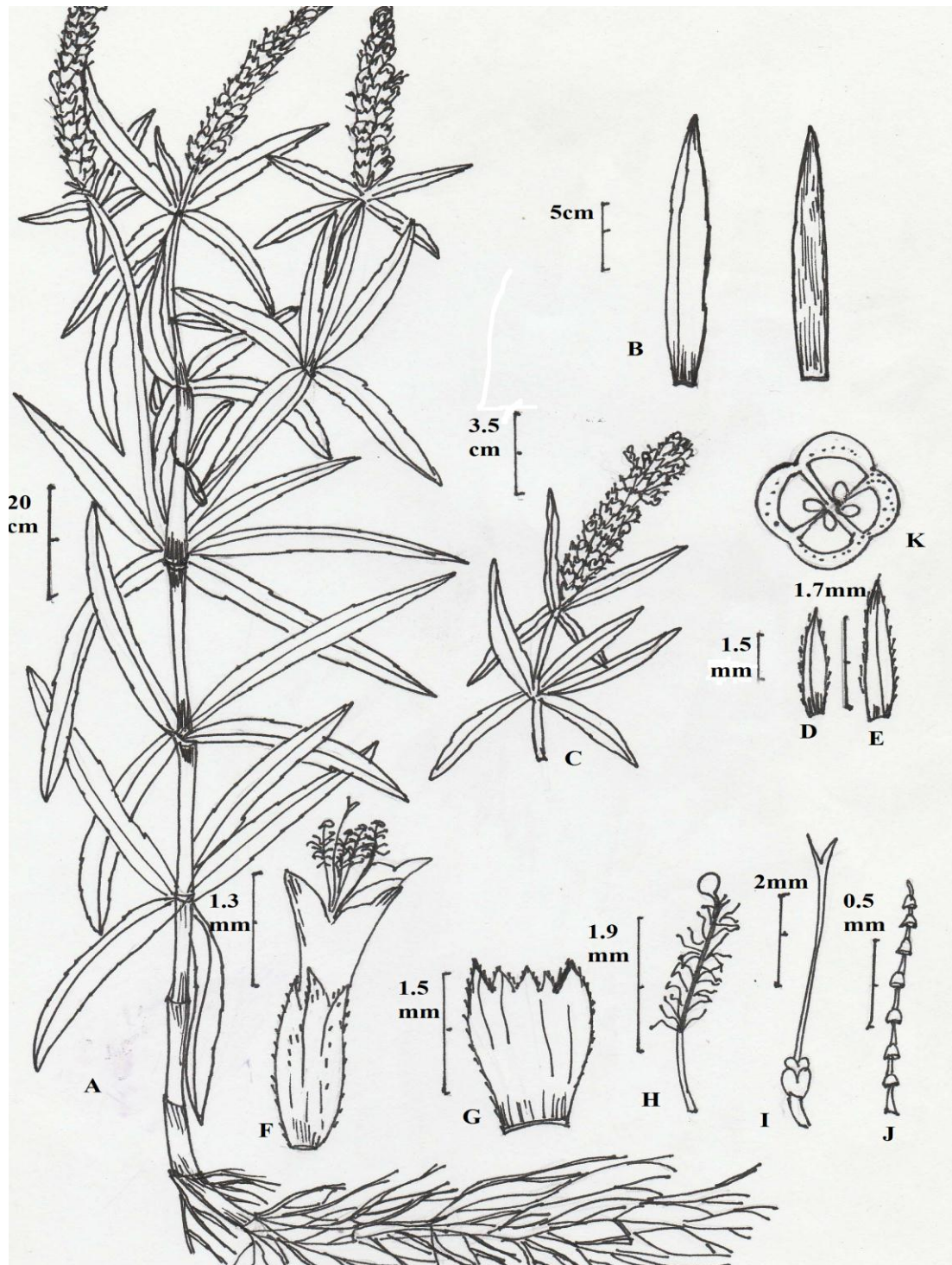


Figure 5. Drawings of *Pogostemon stellatus* (Lour.) Kuntze showing: A. Habit; B. Leaves; C. Inflorescence; D&E; Bract and Bracteole; F. Complete Flower; G. Calyx; H. Stamen; I. Carpel; J. Moniliform Hairs; K. T.S Ovary.

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