

Notes on sedges (Cyperaceae) of Andaman and Nicobar Islands – seven new records and five exclusions

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अंडमान एवं निकोबार द्वीपसमूह के सेड्ज (सायपरेसी) पर टिप्पणी – सात नवीन अभिलेख एवं पांच अपवर्जन

वी. पी. प्रसाद

सारांश

अंडमान एवं निकोबार द्वीप समूह से तृण कुल सायपरेसी के सात नवीन वितरणपरक अभिलेखों जिनमें सायप्रस डिफ्यूसस वाहल उपजाति मैक्रोस्टाइलिस (बोकेलर) टी. कोयामा, फिमब्रिस्टाइलिस सिन्नामोमेटोरम (वाहल) कुंथ, फिमब्रिस्टाइलिस फेरुजिनिया (लिनि.) वाहल उपजाति सायबेरियाना (कुंथ) लाय, फिमब्रिस्टाइलिस ट्राईस्टाइलिया आर. ब्राउ. कायलिंगा ब्रेविफोलिया रॉट्ट. प्रभेद स्टेल्लुलाटा (वाल्क.सुर.) ओह्वी, पिक्रस स्ट्रामिनीयूस सी. बी. क्लार्क एवं पी. पॉलिस्टाकियोस (रोट्ट.) पी. बीयूव. प्रभेद माइक्रोडोन्टस (टोर.) गोवर्टस हैं, को प्रथम बार अभिलेखित किया गया है एवं फिमब्रिस्टाइलिस एस्टीवेलिस (रेट्ज.) वाहल, फिमब्रिस्टाइलिस अल्बोविरिडिस सी. बी. क्लार्क, फिमब्रिस्टाइलिस बिसुम्बेल्लाटा (फोरस्क.) बुबानी, फिमब्रिस्टाइलिस माइक्रोकैरिया एफ. मुल्ल. एवं फिमब्रिस्टाइलिस टोमेन्टोसा वाहल को अंडमान एवं निकोबार द्वीप के फ्लोरा से हटा दिया गया है।

ABSTRACT

Seven taxa namely *Cyperus diffusus* Vahl subsp. *macrostachyus* (Boeckeler) T. Koyama, *Fimbristylis cinnamometorum* (Vahl) Kunth, *Fimbristylis ferruginea* (L.) Vahl subsp. *sieberiana* (Kunth) Lye, *Fimbristylis tristachya* R. Br., *Kyllinga brevifolia* Rottb. var. *stellulata* (Valck.Sur.) Ohwi, *Pycnus stramineus* C.B. Clarke and *Pycnus polystachyos* (Rottb.) P. Beauv. var. *microdontus* (Torr.) Govaerts are reported for the first time from Andaman and Nicobar Islands, and five species, viz., *Fimbristylis aestivalis* (Retz.) Vahl, *Fimbristylis albobiridis* C.B. Clarke, *Fimbristylis bisumbellata* (Forssk.) Bubani, *Fimbristylis microcarya* F. Muell. and *Fimbristylis tomentosa* Vahl are excluded from the flora of Andaman and Nicobar Islands.

Keywords: Andaman and Nicobar Islands, Exclusions, New reports, Sedges

INTRODUCTION

Rao (1986) reported seven species of Cyperaceae in the preliminary report on the angiosperms of Andaman and

Nicobar Islands. In a supplementary list, Lakshminarasimhan & Rao (1996) added one more species and Mathew (1998) listed 12 species of which 10 were not reported in the earlier lists by Rao (l.c.) and Lakshminarasimhan &

Rao (l.c.). But Pandey & Diwakar (2008) enumerated 102 species, seven subspecies and three varieties of sedges and recently Murugan & al. (2017) reported 105 taxa comprising 99 species, four subspecies and two varieties from Andaman and Nicobar Islands. However, a study of the specimens in PBL and CAL, and a perusal of literature revealed that there are seven taxa found in these islands which have not yet been reported from there. Similarly there are five species reported inadvertently based on wrongly identified specimens, and hence, these have to be excluded from the flora of Andaman and Nicobar Islands.

The sedge specimens are often wrongly identified in herbaria and such wrong identifications lead to erroneous reports of taxa either as new to science or as new records. So, identity of all the specimens available in PBL was checked, the unidentified ones were identified and the identity of wrongly identified ones were corrected. The correct determination of identity of these specimens and fresh collections from South Andaman revealed the occurrence of seven taxa of sedges hitherto not reported from these islands, and thus they form new records to the sedge flora of Andaman and Nicobar Islands. Similarly five species reported earlier were found to be based on wrongly identified specimens, and hence, these are excluded here from the flora of Andaman and Nicobar Islands. The relevant synonyms only are provided below in the nomenclature citations and descriptions of the plants are avoided. But distinguishing characters are discussed wherever required.

NEW DISTRIBUTION RECORDS FOR ANDAMAN AND NICOBAR ISLANDS

Cyperus diffusus Vahl subsp. **macrostachyus** (Boeckeler) T. Koyama, Gard. Bull. Singapore 30: 139. 1977. *C. diffusus* var. *macrostachyus* Boeckeler, Linnaea 35: 534. 1868. *C. pubisquama* Steud., Syn. Pl. Glumac. 2: 20. 1854. *C. laxis* Lam. var. *macrostachyus* (Boeckeler) Karthik. in Karthik. & al., Fl. Ind. Enum. Monocot.: 46. 1989. *C. laxis* subsp. *macrostachyus* (Boeckeler) V.P. Prasad & N.P. Singh, Phytotaxonomy 1: 64. 2001.

Cyperus diffusus Vahl has already been reported from the Andaman and Nicobar Islands, but not its subspecies *macrostachyus*. While checking the specimens in PBL, few specimens were found with closely imbricate glumes on the spikelets. A close examination of these specimens revealed that these are of the subspecies *macrostachyus* of

C. diffusus. In the typical *C. diffusus* glumes are not closely imbricate, so that the rachilla is visible. But in subspecies *macrostachyus* spikelets are with closely imbricate glumes, so that the rachilla is not visible.

Specimens examined: Andaman and Nicobar Islands: Kalpong (No. 10), 22.12.1986, G. Chakraborty & G.S. Kindo 12388 (PBL).

Fimbristylis cinnamometorum (Vahl) Kunth, Enum. Pl. 2: 229. 1837. 1989. *Scirpus cinnamometorum* Vahl, Enum. Pl. 2: 278. 1805. *Fimbristylis cyperoides* R. Br., Prodr. Fl. Nov. Holland.: 229. 1810. *F. cyperoides* R.Br. var. *cinnamometorum* C.B. Clarke in Hook.f., Fl. Brit. India 6: 650. 1893.

Found in swampy deciduous forests at lower elevations, it is reported from the mainland, from southern, western and eastern India. However, this is the first report from the Andaman and Nicobar Islands based on a previously unidentified specimen.

Specimens examined: Andaman and Nicobar Islands: Arong, Car Nicobar, 29.09.1976, N.G. Nair 4553 (PBL).

Fimbristylis ferruginea (L.) Vahl subsp. **sieberiana** (Kunth) Lye, Nordic J. Bot. 2: 335. 1982. *F. sieberiana* Kunth, Enum. Pl. 2: 237. 1837. *F. ferruginea* var. *sieberiana* Boeckeler, Linnaea 37: 17. 1871.

F. ferruginea (L.) Vahl has already been reported from the Andaman and Nicobar Islands, but not its subspecies *sieberiana*. It is very similar to the typical *F. ferruginea* and is often treated as its synonym or as a variety. But it can be distinguished by the comparatively well-developed cauline leaves and the lowest involucre bracts usually overtopping the inflorescence. It is also usually found in areas with less salinity.

Specimens examined: Andaman and Nicobar Islands: East Island Wildlife Sanctuary, North Andaman Islands, 24.12.2011, M.Y. Kamble 29327 (PBL); Sombrero, Little Nicobar, 24.03.2009, C. Murugan 26833 (PBL).

Fimbristylis tristachya R. Br., Prodr. Fl. Nov. Holland.: 226. 1810.

This species, distributed from South Asia to Queensland through Malesia is found in the eastern and northeastern states of mainland India. But there are no previous collections from the Andaman and Nicobar Islands. Hence, a recent collection from the South Andaman forms a new distribution record of the species.

Specimens examined: Andaman & Nicobar Islands: Memeyo, South Andaman, 26.11.2016, V.P. Prasad 66797 (CAL).

Kyllinga brevifolia Rottb. var. **stellulata** (Valck.Sur.) Ohwi, Bot. Mag. (Tokyo) 56: 199. 1942. *Cyperus brevifolius* (Rottb.) Hassk. f. *stellulatus* Valck.Sur., Geslacht Cyperus Mal. Archipel.: 48. 1898.

Compared to the typical variety, plants are smaller in size, inflorescence smaller with fewer spikelets and lowermost bract usually erect. The third and fourth glumes are smaller, c. 2 mm long and without spinulose keel, whereas in var. *brevifolia* the glumes are 2.5–3.5 mm long and with spinulose keel.

Specimens examined: Andaman and Nicobar Islands: Navy Dera, Great Nicobar, South Nicobar, 28.05.2001, J. Jayanthi 19316 (PBL); Dhanikari, South Andaman, 26.11.2016, V.P. Prasad 66792 (CAL).

Pycnus polystachyos (Rottb.) P. Beauv. var. **microdontus** (Torr.) Govaerts in Govaerts & D.A. Simpson, World Checkl. Cyperaceae: 610. 2007. *Cyperus microdontus* Torr., Ann. Lyceum Nat. Hist. New York 3: 255. 1836. *C. polystachyos* Rottb. var. *laxiflorus* Benth., Fl. Austral. 6: 261. 1878. *Pycnus polystachyos* var. *laxiflorus* (Benth.) C.B. Clarke in Hook.f., Fl. Brit. India 6: 592. 1893.

As the var. *microdontus* does not show any difference with the typical variety in floral characters, it is often not recognised as a distinct taxon. However, the plants look entirely different as the typical variety has congested inflorescence and the var. *microdontus* is with open, spreading inflorescence. Intermediate forms are also found.

Specimens examined: Andaman and Nicobar Islands: Maymyo, South Andaman, 14.11.1963, N.P. Balakrishnan 1384 (PBL); Galathea, South Nicobar, 24.07.1976, N.P. Balakrishnan 4002 (PBL); Mus, Car Nicobar, North Nicobar, 20.09.1976, N.G. Nair 4458 (PBL); Arong, Car Nicobar, 29.09.1976, N.G. Nair 4549 (PBL); Nirman Nagar, 05.05.1977, P. Chakraborty 5602 (PBL); Navy Dera, Great Nicobar, South Nicobar, 22.02.2003, J. Jayanthi 19423 (PBL); South Bay, Little Andaman, 29.11.2005, L. Rasingam 25853 (PBL).

Pycnus stramineus C.B. Clarke in Hook. f., Fl. Brit. India 6: 589. 1893. *Cyperus stramineus* Nees in Wight, Contr. Bot. India: 74. 1834, *nom. illeg.* *C. substramineus* Kük. in Engl., Pflanzenr. IV, 20(101): 398. 1936.

The representative specimens of two different collections of this species were found mixed with collections of *P. sanguinolentus* (Vahl) Nees from South Andaman and the plant was not noticed by any researchers on the sheets. Probably, both the collections were inadvertently intermixed with *P. sanguinolentus*.

Specimens examined: Andaman and Nicobar Islands: South Andaman, along Jhinga Nala R.F., 13.11.2007, R.P. Pandey 26171B (PBL); around gardens, Port Blair, 15.09.1973, N.G. Nair 361A (PBL).

SPECIES EXCLUDED FROM THE FLORA OF ANDAMAN AND NICOBAR ISLANDS

Fimbristylis aestivalis (Retz.) Vahl, Enum. Pl. 2: 288. 1805; R.P. Pandey & Diwakar, J. Econ. Taxon. Bot. 32: 470. 2008. *Scirpus aestivalis* Retz., Observ. Bot. 4: 12. 1786.

Fimbristylis aestivalis and *F. griffithii* Boeckeler are very similar in appearance and probably the latter was mistaken for *F. aestivalis* and thus its occurrence was reported from Andaman and Nicobar Islands by earlier workers. In *F. aestivalis* plants are densely hairy, especially on leaves (including the sheaths), upper leaves are well-developed and the style is always hairy. In *F. griffithii* plants are glabrous, culm-base clothed with 1 or 2 bladeless sheaths or shortly laminate sheaths and the style is always glabrous. Therefore, *F. aestivalis* is excluded from the Flora of Andaman and Nicobar Islands.

Specimens examined: Andaman and Nicobar Islands: Rutland, South Andaman, 29.09.2003, K. Karthigeyan 19620 (PBL); Galathea River bank, South Nicobar, 24.03.1966, K. Thothathri & Banerjee 11493 (PBL).

Fimbristylis albobiridis C.B. Clarke in Hook.f., Fl. Brit. India 6: 638. 1893; Karthik. & al., Fl. Ind. Enum. Monocot.: 50. 1989; R.P. Pandey & Diwakar, J. Econ. Taxon. Bot. 32: 470. 2008.

Fimbristylis albobiridis is reported from Andaman and Nicobar Islands (Karthikeyan & al., 1989; Pandey & Diwakar, 2008). But a study of the specimens in PBL revealed that these are nothing but *F. dichotoma* (L.) Vahl, a highly variable species. Both look very similar and can be differentiated only by examining the achenes under microscope. In *F. albobiridis* epidermal cells on the achenes are in 10 to 16 vertical rows on either side, but in *F. dichotoma* in 5 to 10 rows. In PBL specimens, the epidermal cells are not in more than 10 rows and hence these have to be treated as *F. dichotoma*. Therefore, *F. albobiridis* is excluded from the Flora of Andaman and Nicobar Islands.

Specimens examined: Andaman and Nicobar Islands: Port Blair, around gardens, 15.09.1973, N.G. Nair 360 (PBL); Mildera, Katchal Island, North Nicobar,

29.04.1974, *P. Chakraborty* 1223 (PBL); Camp No. 15, Polobjig, Middle Andaman, 16.07.1974, *N. Bhargava* 1724 (PBL); Hut Bay, Little Andaman, 03.01.1975, *N. Bhargava* 3311 (PBL); Campbell Bay, Great Nicobar, 17.08.1975, *N.P. Balakrishnan* 2935 (PBL); Sitanagar settlements area, 15.05.1982, *M.K.V. Rao* 9049 (PBL).

Fimbristylis bisumbellata (Forssk.) Bubani, Gazz. Tosc. Sci. Med.-Fis. 8(5): 30. 1850; M.C. Naik & al., J. Threat. Taxa 8(5): 8831. 2016. *Scirpus bisumbellatus* Forssk., Fl. Aegypt.-Arab.: 15. 1775.

Recently Naik & al. (2016) reported this species from Andaman and Nicobar Islands based on wrongly identified specimens. General appearance of *F. bisumbellata* and *F. dichotoma* is different as the former is always an annual and the latter a perennial (except the first year plants which often look like an annual). A careful study of their collection (*R.P. Rao* & *C. Naik* 46522) revealed that description by Naik & al. (l.c.) doesn't match with the specimens studied by them. Width of the spikelet is an important character to separate these two species. In the above mentioned specimen spikelets are terete and c. 2 mm wide, the characteristic feature of *F. dichotoma*, whereas in *F. bisumbellata* the spikelets are angular and up to 1.5 mm wide.

Specimens examined: Andaman and Nicobar Islands: Rutland Island, South Andaman, 15.09.2014, *R.P. Rao* & *C. Naik* 46522 (CAL).

Fimbristylis microcarya F. Muell., Fragm. 1: 200. 1859; M.C. Naik & al., J. Threat. Taxa 8(5): 8833. 2016. *F. complanata* (Retz.) Link var. *microcarya* (F. Muell.) C.B. Clarke in Hook.f., Fl. Brit. India 6: 646. 1893.

Naik & al. (2016) reported *F. microcarya* as new to Andaman and Nicobar Islands. However, the image provided by them does not show the distinguishing characters of *F. microcarya*. The careful examination of their collection (*R.P. Rao* & *C. Naik* 48040) at CAL revealed that it was merely an erroneous identification of the common *F. quinquiangularis* (Vahl) Kunth. The culms in *F. microcarya* are strongly compressed and leaves always ligulate. But in the above mentioned specimen, culms are not compressed, but acutely 4-angled and leaves are eligulate.

Specimens examined: Andaman and Nicobar Islands: Thirur-Pahad, South Andaman, 20.09.2014, *R.P. Rao* & *C. Naik* 48040 (CAL).

Fimbristylis tomentosa Vahl, Enum. Pl. 2: 290. 1805; R.P. Pandey & Diwakar, J. Econ. Taxon. Bot. 32: 471. 2008. *F. podocarpa* Nees & Meyen in Wight, Contr. Bot. India: 98.

1834. *F. dichotoma* (L.) Vahl subsp. *podocarpa* (Nees & Meyen) T. Koyama, Micronesica 1: 87. 1964.

Fimbristylis tomentosa reported from Andaman and Nicobar Islands is actually *F. dichotoma*. The achenes in *F. tomentosa* are prominently stipitate due to the conspicuous gynophore and the epidermal cells are in 16 to 24 vertical rows on either side. But in the PBL specimens achenes are with inconspicuous gynophores and the epidermal cells are not in more than 10 vertical rows on either side. Hence, these have to be treated as *F. dichotoma*.

Specimens examined: Andaman and Nicobar Islands: Mildera, Katchal Island, North Nicobar, 29.04.1974, *P. Chakraborty* 1223 (PBL); Durgapur, 20.11.1976, *N.G. Nair* 4844 (PBL); Mildera, Katchal Island, 01.05.1977, *P. Chakraborty* 5573 (PBL); Great Nicobar, 11.06.2001, *J. Jayanthi* 18363 (PBL).

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