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# Journal of Threatened Taxa

Building evidence for conservation globally

[www.threatenedtaxa.org](http://www.threatenedtaxa.org)

ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

## NOTE

### ADDITION OF FOUR SPECIES TO THE FLORA OF ANDAMAN ISLANDS, INDIA

Mudavath Chennakesavulu Naik, Lal Ji Singh, Gautam Anuj Ekka & C.P. Vivek

26 February 2021 | Vol. 13 | No. 2 | Pages: 17843–17846

DOI: [10.11609/jott.5990.13.2.17843-17846](https://doi.org/10.11609/jott.5990.13.2.17843-17846)



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## Addition of four species to the flora of Andaman Islands, India

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The genus *Chlorophytum* Ker Gawler belonging to the family of Asparagaceae includes about 200 species (Govaerts et al. 2012) distributed in the Old-World tropics (Mabberley 2017). In India, the genus is represented by 19 species (Chandore et al. 2012). In Andaman & Nicobar Islands only one species - *Chlorophytum comosum* (Thunb.) Jacques was reported. The genus *Elatostema* J.R.Forst. & G.Forst. belongs to the family Urticaceae. It is one of the largest genera in the family with ca. 350 species from tropical to subtropical regions of Africa, Asia, and Oceania. In mainland India more than 10 species are distributed while in Andaman & Nicobar Islands two species are listed, viz., *Elatostema integrifolium* (D.Don) Wedd. and *Elatostema rostratum* (Blume) Hassk. The genus *Ammannia* L. belongs to the family Lythraceae; about 25 species are widely distributed in tropical areas, mainly in Africa and Asia; three taxa in Andaman & Nicobar Islands have been enlisted, viz.: *Ammannia baccifera* L., *A. baccifera* L. ssp. *aegyptiaca* (Willd.) Koehne, and *A. multiflora* Roxb. The genus *Christisonia* Gardner (including *Campbellia* Wight) is mostly parasitic and the species-rich family Orobanchaceae is recognized worldwide with 90 genera and ca. 1,800 species. In southern and eastern Asia,

the genus consists of 17 species distributed in India, Sri Lanka, Laos, southwestern China, Thailand, and Malesia (modified after Nickerent 2012). In India nine species of *Christisonia* have been recorded (Benniamin et al. 2012; Govaerts et al. 2012). In Andaman Islands one species, *Christisonia subacaulis* (Benth.) Gardner has been reported (Murugan et al. 2016).

On scrutiny of the relevant literature (Parkinson 1923; Hajra et al. 1999; Sinha 1999; Pandey & Diwakar 2008; Singh et al. 2014; Murugan et al. 2016; Naik & Singh 2018 a,b; Naik et al. 2019; Singh & Naik 2019) and on critical examination the identity of plants was confirmed as *Chlorophytum vestitum*, *Elatostema cuneatum*, *Ammannia auriculata*, and *Christisonia siamensis* hitherto unreported from Andaman & Nicobar Islands. Hence, this collection is found to be an addition to angiosperm flora of Andaman Islands. Representative specimens were collected in quadruplicates, poisoned, dried, and made into herbarium specimens following Jain & Rao (1977). The herbarium specimens were critically examined with the help of standard floras and appropriate websites. The voucher specimens are deposited at herbarium of Andaman & Nicobar Regional Centre, Port Blair (PBL). Abbreviation used for collectors

**Editor:** N.P. Balakrishnan, Coimbatore, Tamil Nadu, India.

**Date of publication:** 26 February 2021 (online & print)

**Citation:** Naik, M.C., L.J. Singh, G.A. Ekka & C.P. Vivek (2021). Addition of four species to the flora of Andaman Islands, India. *Journal of Threatened Taxa* 13(2): 17843–17846. <https://doi.org/10.11609/jott.5990.13.2.17843-17846>

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**Funding:** Science and Engineering Research Board (SERB, N-PDF), Govt. of India.

**Competing interests:** The authors declare no competing interests.

**Acknowledgements:** The authors are grateful to Dr. A.A. Mao, director, Botanical Survey of India, Kolkata for constant support and facilities. The authors greatly acknowledge Department of Science & Engineering Research Board (SERB N-PDF/2017/001479), Govt. of India, New Delhi for providing financial assistance. We are also thankful to Ministry of Environment, Forests & Climate Change for facilities and Department of Environment & Forests, Andaman & Nicobar Administration, for necessary permission and logistic support in conducting field studies. The authors are thankful to scientists and staff of BSI who have always shown readiness for help.



are: MCN (M. Chennakesavulu Naik) GAE (Gautam Anuj Ekka) VCP (Vivek, C.P.) and LJS (Lal Ji Singh).

### Asparagaceae

*Chlorophytum vestitum* Baker

J. Linn. Soc., Bot. 15: 326. 1876. (Image 1).

Specimens examined: 33671 (PBL), 30.ix.2019. Middle Andaman Islands, Rangat, Panchavathi Hills, MCN.

Description: Perennial herbs, up to 30cm high, rhizome horizontal, narrow, roots fibrous with few tubers. Leaves distichous, linear, 10–20 cm × 2–6 mm long, grass-like, ciliate to hairy, fleshy, pale green. Inflorescence lax panicle, 3–5 flowered, 5–10 cm long, cylindrical, terete. Flowers white, pale green base. Bracts caducous. Tepals 6, 3–4 × 2 mm, lanceolate, glabrous. Stamens 6, fused. Anthers spirally arranged. Capsule trilobular, glabrous. Seeds cordate-shaped, glabrous, glaucous, middle notched.

Flowering & fruiting: September–December.

Distribution: India (Middle Andaman Islands (Panchavathi Hills) and Andhra Pradesh); tropical Africa, Zambesiaca (Malawi).

Habitat and ecology: Rare, in rocky crevices and sun exposed areas of hill tops.

Associate species: *Hybanthus enneaspermus* (L.) F.Muell. and *Osbeckia chinensis* L.

### Urticaceae

*Elatostema cuneatum* Wight

Icon. Pl. Ind. Orient. 6: t. 2094, f. 3. 1853. (Image 2).

Specimens examined: 33704 (PBL), 03.ix.2019. South Andaman Islands, Ross Island, MCN & GAE.

Description: Annual herbs, up to 5 cm high; stems triangular. Leaves subsessile, opposite, falcate-cuneate to obovate, 0.5–3 × 0.3–1.8 cm, narrowed entire base, obtuse or acute, crenate-serrate in the upper part, ciliate, glabrous or thinly hairy, linear cystoliths; stipules minute, ovate, acute. Inflorescence axillary, head like; male flowers: heads in the axils of upper leaves; pedicel very short. Perianth segments ovate, obtuse, glabrous. Stamens 4; filaments 0.08mm long. Female flowers: heads with few female flowers in the centre; involucre bracts 3–4; outer ones ovate, acuminate; inner ones ovate-oblong, rounded, ciliate; bracteoles spatulate. Perianth 3–4, dentate at mouth. Achenes reddish brown, ovoid-ellipsoid.

Flowering and fruiting: September–February.

Distribution: India (South Andaman Islands, Ross Island, Goa, Himalaya, Karnataka, Kerala, Maharashtra, Sikkim, and Tamil Nadu), China, Japan, Korea, India,

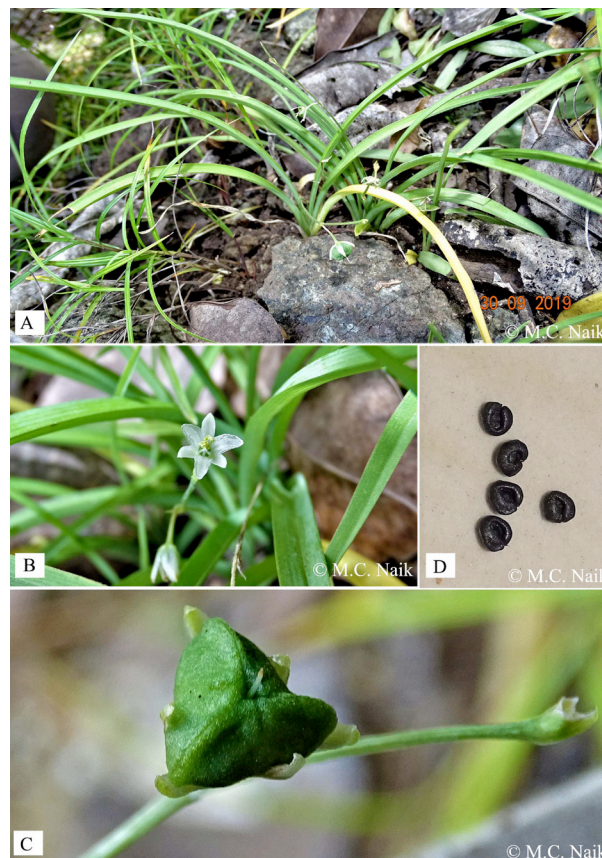


Image 1. *Chlorophytum vestitum* Baker. A—habit | B—flower | C—capsule | D—seeds.

Laos, Vietnam, and Indonesia.

Habitat & ecology: Rare, in moist localities and shady places.

Associate species: *Pilea microphylla* (L.) Liebm. and *Pouzolzia hirta* Blume ex Hassk.

### Lythraceae

*Ammannia auriculata* Willd.

Hort. Berol. 1: 7. 1806. (Image 3).

Specimens examined: 33692 (PBL), 02.ii.2020. Middle Andaman Islands, Billiground, MCN.

Description: Annual herb, up to 40cm. Stem quadrangular. Leaves linear-lanceolate, 6–60 × 1.78 mm. Inflorescence axillary, cymose; 1–12 flowered; peduncle 6mm long; pedicel 1–4 mm long. Hypanthium vertically 8–10 green-ribbed; ribs obscure in fruit. Epicalyx minute. Petals obovate-cuneate. Stamens inserted above the middle of the hypanthium. Ovary broad; style 1–7 mm long. Capsule slightly exceeding the hypanthium, 2–3 mm long. Seeds discoid.

Flowering and fruiting: August–September.

Distribution: India (Middle Andaman Islands,



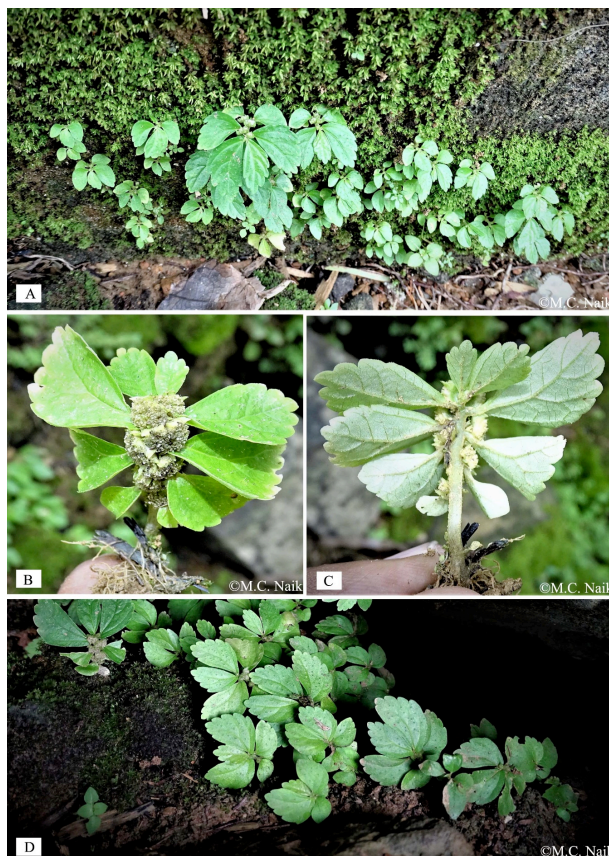


Image 2. *Elatostema cuneatum* Wight. A & D—habit | B—upper view of Inflorescence | C—lower view of plant.

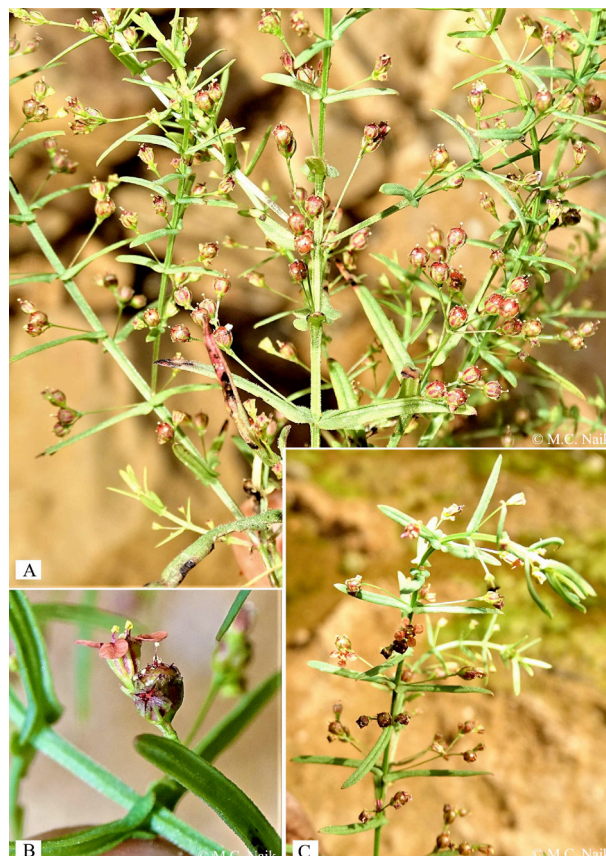


Image 3. *Ammannia auriculata* Willd.: A—habit | B—close-up view of flower and capsule | C—small twig view of phyllotaxy.

Billiground, Andhra Pradesh, Karnataka, Kerala, and Tamil Nadu), widely distributed throughout tropical and warm temperate regions.

Habitat & ecology: Rare, distributed seashore areas.

Associate species: *Justicia procumbens* L. and *Mecardonia procumbens* (Mill.) Small.

### Orobanchaceae

*Christisonia siamensis* Craib

Bull. Misc. Inform. Kew 129. 1914. (Image 4).

Specimens examined: 33639 (PBL), 16.i.2019. South Andaman Islands, Mount Harriet, MCN.

Description: Root parasite, biennial herb, up to 6-8 cm high, subglabrous. Stems 1-2 cm long. Leaves not shown. Flowers 2 to several, clustered at stem apices; bracts oblong or ovate, 6-8 × 3-5 mm. Pedicel short or absent. Calyx tubular, 1.5-3 cm long, sub-membranous or leathery when dry, apex irregularly five-toothed; lobes triangular or lanceolate, two larger and 0.5-1 cm, three smaller, 4-8 mm, apex usually acute. Corolla very unusual in lacking all violet pigmentation, corolla is largely white but with an obvious yellow internal stripe

running on the length of the middle of the abaxial lip and sometimes with patches of yellow on the lateral lobes at the mouth of the flower. Filaments 8-10 mm long, glabrous or sparsely glandular; anthers with one fertile cell in upper two stamens, reduced into sticks in lower two stamens. Ovary 1-locular. Style 2-3.6 cm; stigma larger, discoid, 4-6 mm in diam. Capsule ovoid.

Flowering & fruiting: January-February

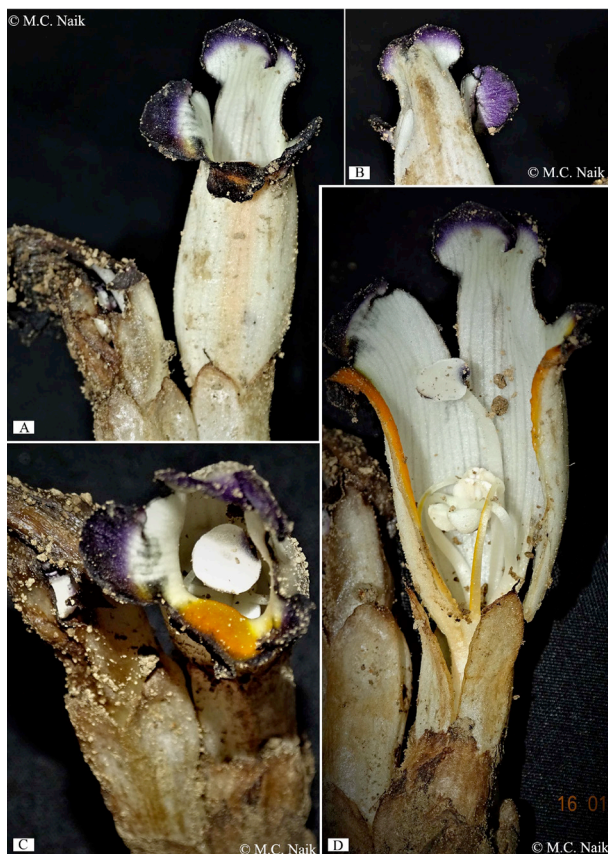
Distribution: India (South Andaman Island (Mount Harriet), Kerala, and Nagaland) and Thailand.

Habitat & ecology: Rare, in moist localities, shady places.

Associate (host plant) species: *Syzygium claviflorum*.

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**Image 4.** *Christisonia siamensis* Craib: A—habit | B—dorsal view of corolla | C—upper view of corolla | D—longitudinal view of interior parts of corolla.

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ISSN 0974-7907 (Online) | ISSN 0974-7893 (Print)

February 2021 | Vol. 13 | No. 2 | Pages: 17611–17846

Date of Publication: 26 February 2021 (Online & Print)

DOI: 10.11609/jott.2021.13.2.17611-17846

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