



New Distributional Records to the State Flora of Tamil Nadu from Southern Western Ghats, India

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General Note

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ABSTRACT

The present study found new distributional records of 16 flowering plant taxa to Tamil Nadu state from southern Western Ghats. The additional plant species are namely *Alpinia fax*, *Ardisia stonei*, *Cuscuta krishnae*, *Impatiens minae*, *I. munnarensis*, *Gomphostemma keralensis*, *Bulbophyllum aureoflavum*, *B. mysorensis*, *Oberonia josephii*, *O. longibracteata*, *O. swaminathanii*, *Sauropus saksenanus*, *Polypleurum disciforme*, *Ophiorrhiza radicans*, *Solanum pseudocapsicum* var. *diflorum* and *Zingiber neesanum*. In addition to this the relevant citation, description, flowering and fruiting period, distribution, notes and colour photographs are provided for easy identification.

Key words: Megamalai Wildlife Sanctuary, New records, Flora of Tamil Nadu, Flowering plants.

1. INTRODUCTION

The Megamalai Wildlife Sanctuary (MWLS) is a part of southern Western Ghats lying between (9°31'–9°51'N and 77°10'–77°30'E) in Theni District of Tamil Nadu. The altitude ranges from 300 to 2000 (msl). The mountain range is otherwise popularly known as High

Wavy mountains and Pachakumatchi hills. The Cumbum valley and Varushanad valley also include in the sanctuary. A portion of the northern slopes of the landscape together with Madurai Forest Division has recently been declared as the Megamalai Wildlife Sanctuary (Tamil Nadu Govt. Gazette 2009). It is a spur of the Western Ghats in Agastyamalai range and it has comprised Theni, Uthamapalayam, Chinnamanur, Cumbum, Gudalur, Bodi, Megamalai, and Varushanadu ranges. The MWLS is located on the border of Kerala and Tamil Nadu and covered about 647 Km² area. This hill range is adjoining to the Periyar Tiger Reserve, Idukki district of Kerala, and Grizzled Squirrel Sanctuary of Srivillipudur in Tamil Nadu. This is the main catchment area for important perennial rivers like Vaigai, Vaipar and Suruliar. Most of the sanctuary area is often sheltered by several tea, coffee, and cardamom estates with the patch of dense forest cover.

This area forms a part of the South Sahyadris and Tamil Nadu Uplands. Most parts of the Megamalai are under the administrative jurisdiction of the Theni Forest Division, Tamil Nadu (Anon, 2005). The higher elevation of Megamalai was opened up for various commercial plantations during mid 1940s (Hutton and David 2009). This landscape also forms a buffer to the existing protected areas such as Srivilliputhur Grizzled Squirrel Sanctuary (Varusanadu) on the east and the Periyar Tiger Reserve on the south (Bhupathy *et al.*, 2009).

During the intensive floristic exploration of the study area have been resulted with many endemic, rare and endangered species in the forest range. All the collected species were prepared herbarium and deposited in Madura college herbarium. The specimens were identified initially using local and regional Floras and monographs (Gamble & Fischer 1914; The Flora of Kerala, 2005; Bhaskar, 2012). The identity of each specimen was confirmed by comparing with the authentic herbarium specimens available at various herbarias in India (BSI, MH-Coimbatore; CAL-Calcutta; KFRI-Peechi). The present investigation revealed that 16 plant species collected from the study area were not reported in Tamil Nadu state by any previous works (Nayar *et al.*, 1989; Matthew 1999; Nayar *et al.*, 2014).

2. RESULTS

The plant species name arranged in alphabetical order and followed by citation, short description, flowering and fruiting period, specimen examined and photographs for easy identification.

Alpinia fax Burt & R.M. Smith, Notes Roy. Bot. Gard. Edinb. 34: 177. 1975 & in Dassanayake & Fosberg, Rev. Handb. Fl. Ceylon 4: 514. 1983; Prasanthkumar *et al.*, Rheedea 12: 179. 2002; Sabu, Zingiberaceae and Costaceae of South India 52. 2006. *Elettaria involucreta* Thw., Enum. Pl. Zeyl. 319. 1864, non *Alpinia involucreta* Griff., Notul. Pl. Asiat. 3: 422. 1851. *Amomum involucreatum* (Thw.) Trimen, Cat. 92. 1885 & Handb., Fl. Ceylon 44: 1898, excl. descr.; Hook. f., Fl. Brit. India 6: 233. 1892; Sasidh., Fl. Periyar Tiger Reserve 445. 1998.

Herb exceeding 2 m, ligule one lobe. Leaves sessile, lamina broadly lanceolate, acuminate tip and attenuate base, margin entire. Inflorescence with up to 60 flowers. Bract: sterile restricted to the basal most spiral of bracts, fertile bracts subtending a cincinni with 3–5 flowers, first (basal most) and second bract at the base of the inflorescence comparatively large, others narrower, pink-red/ maroon, pubescent, denser towards tip, all bracts oblong and mucronate. Bracteoles tubular but splits towards the base, Flower 3–4 cm long. Calyx tubular unilaterally, sparsely pubescent, bilobed. Corolla tube glabrous, three corolla lobes, ovate, apiculate, concave, dorsal lobe broader than laterals. Labellum indecisively tri-lobed, obovate, apex obtuse to retuse, pure white or greenish white, no stripes or any other colored patterns, glabrous. Stamen 5–7 mm long, anther sessile, glabrous. Ovary rather elongated and no distinct shape appears to have three sides white-pink, pubescent. Fruits. capsules, elongated, dark red-maroon at young stage, densely pubescent at young stage becomes less with age.

Specimen examined: Tamil Nadu, Theni district, S. Karuppusamy & V. Ravichandran 1268, 11-02-2013, Near Vinayagar temple, Megamalai. **Flowering & Fruiting:** January-May. **Distribution:** Sri Lanka **India:** Kerala and Tamil Nadu.

Ardisia stonei Sasidh. & Sivar., Rheedea 4: 116. 1994; Sasidh. & Sivar., Fl. Pl. Thrissur For. 260. 1996; Sasidh., Fl. Shenduruny WLS 184. 1997; Sasidh., Fl. Periyar Tiger Reserve 222. 1998. *Antistrophe serratifolia* sensu Mohanan & Sivadasan, Mohanan & Sivad., Fl. Agasthyamala 402, non (Bedd.) Hook. f. 1876; FWG 1: 666.2014.

Low shrubs; branchlets rusty tomentose. Leaves to 15 x 4.5 cm, oblanceolate, abruptly acuminate at apex, attenuate and rounded at base, crenate-serrate along the margins, glabrous; nerves ca. 18 pairs, distinct, coarsely reticulate. Flowers in deflexed and shortly peduncled umbels, axillary, pedicels 3 mm long; calyx lobes 2 mm long, lanceolate, acuminate; corolla pink, lobes 6 mm long, lanceolate, acuminate, red-glandular; anthers acute.

Specimen examined: Tamil Nadu, Theni district, S. Karuppusamy & V. Ravichandran 1278, 11-02-2013, On the way to Chettiar kaatu mottai, Megamalai. **Flowering & Fruiting:** Throughout the year. **Distribution:** Kerala and Tamil Nadu (Endemic).

Bulbophyllum aureoflavum Karupp. & V.Ravich. Taprobanica 5: 120-123.2013; FWG 2: 1243.2014.

Lithophyte, creeping, rhizomatous herb. Pseudobulb 1.4 x 1 cm, subglobose, brownish, 1.5–2.5 cm apart, molten shining, ribbed vertically, light greenish brown when immature. Leaf solitary; petiole short, 0.5 mm long, glabrous; blade elliptic-ovate, 5 x 1.5 cm long, unequally notched apically. Scape solitary, arise from base of pseudobulb; peduncle longer than leaves, up to 6 cm long, filiform, glabrous. Inflorescence umbellate, 12-flowered; pedicel up to 4 mm long, glabrous. Flowers light golden yellowish, fluorescent greenish in bud; dorsal sepal ovate-lanceolate, 0.7 mm long, minutely 3-veined, yellowish, glabrous, acuminate, hooded; lateral sepals membranous, 2 x 0.7 cm, obovoid-elliptic, transparent yellowish, inconspicuously 3-veined, connate along the dorsal margins; petals ovate, yellowish, 3-veined, glabrous, acuminate; lip prominent, 10 mm long, dilated basally; upper lip membranous, lanceolate, acuminate. Column boat-shaped, rectangular, ca 0.1 mm long; stigmatic lobes curved. Pollen mass two, attached on upper curve of stigma, bright yellow, minute, 0.1 mm. Ovary 0.5 mm long, greenish, slightly ribbed, minutely pubescent. Fruit ovoid, 1 cm long, ribbed.

Specimen examined: Tamil Nadu, Theni district, S. Karuppusamy and V. Ravichandrn, 1278, 31-05-2014, Eravangalaru estate border. **Kerala**, Idukki district, S. Karuppusamy, 1246, 11-05-2011, Munnar near Gap road. **Flowering & Fruiting:** April-May.

Distribution: Tamil Nadu and Kerala (Endemic).

Bulbophyllum mysorens J.J. Sm. Bull. Jard. Bot. Buitenzorg ser. 2, 8: 26.1912; FPM 3: 1418.1928; FWG 2: 1067.2014. *Cirrhopetalum mysorens* Rolfe Bull. Misc. Inform. Kew 98: 34.1895.

Pseudobulb ovoid, 1.5-2 x 1-1.5 cm. Leaves solitary, 6-7.5 x 1-1.5 cm, linear-oblong, base subacute; petiole 0.8-1 cm long, obtuse, emarginate at apex. Flowers 3-4, yellowish-white, in about 5 cm long umbel from the base of pseudobulb; bracts 4-5 x 1-2 mm, lanceolate, acuminate, 1-veined; dorsal sepal lanceolate, acuminate, 5-veined; lateral sepals lanceolate, longacuminate, 5-veined; petals elliptic, linear-lanceolate, acute, 3-veined; lip ca. 4 x 1 mm, oblong, acute, curved.

Specimen examined: Tamil Nadu, Theni district S. Karuppusamy & V. Ravichandran 0503, 17-07-2014, way to Kootar, High wavys.

Flowering & Fruiting: June-September. **Distribution:** Karnataka, Tamil Nadu and Kerala (Endemic).

Cuscuta krishnae Udayan et al., Webbia 71: 45-47, 2016.

Epiphytic climbing herbs; stem wiry, yellowish to orange or purple, specked with purple dots. Leaves absent or minute scaly in nodes. Flowers in clusters on nodes, bearing 1-2 cm long pedicels, white to purplish white flowers, scales short, base of the corolla tube, outside the corolla tube scattered with purplish dots. Corolla lobes ovate; stigma ligulate. Capsule usually 3-seeded.

Specimen examined: Tamil Nadu, Theni district S. Karuppusamy & V. Ravichandran 1091, 26-08-2014, No.1 Tea plot above High Wavy's, Hospital valley. **Flowering & Fruiting:** August – December. **Distribution:** Known only to Kerala and Tamil Nadu.

Note: This species is described very recently from the adjoining areas of Kerala, Idukki district. We have collected earlier than the description but it is rightly matched the new species *C. krishnae*.

Gomphostemma keralensis Vivek., Gopalan & R.Ansari Kew Bull. 38: 189.1984; FWG 1: 541.2014.

Subshrubs; stem quadrangular, stellately tomentose. Leaves 26 x 10 cm, elliptic-oblong, dentate, acuminate. Flowers 10-15, sessile, axillary. Calyx lobed to the middle; lobes ovate, subulate. Corolla upper lip ovate, rounded; lower lip 3-lobed, lobes oblong, rounded, midlobe smaller than the lateral lobes, filaments hairy. Nutlets oblong-ellipsoid, pubescent.

Specimens examined: Tamil Nadu, Theni district S. Karuppusamy & V. Ravichandran 0514, 11-11-2014, Kumili border. **Flowering & Fruiting:** October-November. **Distribution:** Tamil Nadu and Kerala (Endemic).

Impatiens minae Ratheesh, Anil Kumar, & Sivad. Bangladesh J. Pl. Taxon. 18(2); 142. 2011.

Scapigerous terrestrial herbs, rootstock tuberous. Leaves radical, fleshy, ovate-orbicular or reniform, obtuse or rounded at apex, base cordate, margin crenate or serrate, finely hairy, pinkish green above, glabrous, pale green below. Inflorescence scape racemose. Flowers clustered at the apex, deep pink, lateral sepals 2, lower sepals long-spurred, spur slender, pink, slightly recurved or pendent. Lateral united petals 3-lobed, pink, with a slightly curved band of dense red-tipped clavate papillae just above base; basal lobes slightly larger than the distal lobes, curved outwards, broadly oblong, rounded; middle lobes broader towards tip, broadly obovate; distal lobes strap-shaped. Stamens 5, connate.

Specimens examined: Tamil Nadu, Theni district S. Karuppusamy & V. Ravichandran 1027, 20-07-2-2014, Variyattu mottai, Venniar. **Flowering & Fruiting:** July-October. **Distribution:** Tamil Nadu and Kerala (Endemic).

Impatiens munnarensis E.Barnes Bull. Misc. Inform. Kew 1938, 32; TFK 1:551.2005.

Semi-erect herbs with slender stems. Leaves lanceolate, narrowly ovate with a subacute base, margins distantly serrate, pubescent above glaucous below. Inflorescence solitary lateral sepals filiform curved, lip boat shaped, wings white with lilac or violet markings. Capsules fusiform, acuminate, few seeded. Seeds black, glossy.

Specimens examined: Tamil Nadu, Theni district S. Karuppusamy & V. Ravichandran 1023, 20-07-2-2014, Venniar dam, on the way to Varaiyattu mottai. **Flowering & Fruiting:** September–December. **Distribution:** Tamil Nadu and Kerala (Endemic).

Note: This species was earlier described by E. Barnes from the Munnar, Idukki district of Kerala state in 1938, after there is no recollection for the species. It is said to be possibly extinct species, but we have succeeded to collect this species from our study area hence it forms the rediscovery after 78 years and new record for the state flora. We have observed very healthy population of this species in single locality of the study area.

Oberonia josephi Saldanha Indian Forester 100: 569.1974; FWG 2: 1092.2014.

Pendulous epiphytes. Leaves 10-16 x 0.5-0.6 cm, ensiform, flattened, acute. Scape to 10 cm long, slightly winged. Inflorescence many flowered; spike with a sterile portion at the apex; floral bracts fimbriate; flower orange, in distinct verticels; sepals dissimilar; petals crossing each other; lip 3-lobed, sparsely gland dotted; disc ovate, serrate; pollinia 4.

Specimen examined: Tamil Nadu, Theni district S. Karuppusamy & V. Ravichandran 1068, 09-08-2014, Raja podu pathai, High ways. **Flowering & Fruiting:** January-February. **Distribution:** Karnataka, Tamil Nadu and Kerala (Endemic).

Oberonia longibracteata Lindl., Gen. Sp. Orchid. Pl. 15. 1830 & Fol. Orch. Oberonia 2. 1859; Hook. f., Fl. Brit. India 5: 676. 1888; R. Ansari & Balakr., Orch. Monogr. 4: 39. 1990; Muktesh, Epiphytic Fl. Western Ghats 109. 1998; Sasidh., Fl. Periyar Tiger Reserve 430. 1998; Sathish & Manilal, Orchid Memories 205. 2004; FWG 2: 1092.2014.

Leaves to 9 x 1 cm, linear-oblong, ensiform, acuminate. Scape flattened. Spike to 9 cm long. Flowers 2.5 x 2 mm, yellowish-brown, scattered; bracts much longer than the pedicel and ovary, linear-lanceolate, acuminate; dorsal sepal ovate-lanceolate, acute; lateral sepals ovate, acute; petals oblong, acute; lip quadrate in outline, 3-lobed; lateral lobes oblong, cuneate, wing like truncate, subentire; midlobe suborbicular; disc ovate, saccate.

Specimen examined: Tamil Nadu, Theni district, S. Karuppusamy & V. Ravichandran 1268, 11-02-2013, Megamalai. **Flowering & Fruiting:** September–December. **Distributions:** Sri Lanka, Thailand, China, Vietnam. **India:** Kerala and Tamil Nadu (Endemic).

Oberonia swaminathanii Ratheesh, Manudev & Sujanal Nordic. J. Bot. 28: 713. 2010; FWG 2: 1094.2014.

Epiphytes, pendulous, acaulescent. Leaves 4-6, articulate at base up to ca. 16 x 1.8 cm, oblong-ensiform, acute or acuminate. Scape shorter than the larger leaf, up to 14 cm long, flattened, spike up to 13 cm long, with a distinct sterile tip. Flowers shortly pedicelled, spirally arranged; sepals and petals dissimilar, sparsely gland dotted, glabrous, reflexed; sepals subsimilar; dorsal sepal elliptic-oblong, acute, entire; lateral sepals shorter than the dorsal sepals, rounded at apex, entire; petals oblong-linear lanceolate, sub acute, serrate along margins; lip antrorse, semiorbicular in outline, 3-lobed; ovary slightly ridged; column sub-globose.

Specimen examined: Tamil Nadu, Theni district S. Karuppusamy & V. Ravichandran 1085, 10-08-2014, Upper Manalar on the way to Brooke Peak. **Flowering & Fruiting:** August–November. **Distribution:** Tamil Nadu and Kerala (Endemic).

Ophiorrhiza radicans Gardn. in Thwaites, Enum. Pl. Zeyl. 139. 1864 (*Type:* Sri Lanka, *Thwaites C.P.* 1706 CAL!, BM!); Hook.f., Fl. Brit. India 3: 80. 1880; Trimen, Handb. Fl. Ceylon 2: 321.1885; Deb & Mondal in Nayar & Sastry, Red Data Book Indian Pl. 2: 227 fig. 1. 1988; Deb & Mondal, Bull. Bot. Surv. India 39: 99. 1997; Sasidharan, Biod. Doc. Kerala Pt. 6: Fl. Pl. 227. 2004; T.S. Nayar *et al.*, Fl. Pl. Kerala-Handb. 532. 2006; FWG 1:796.2014.

Annual creeping herbs, 15–25 cm long, rooting at the nodes; branches densely pubescent; leaves 1.5–3 x 0.8–1.8 cm, ovate to orbicular, obtuse to acute apex, cordate or rounded base, upper surface glabrous, stipules 1mm long subulate, pubescent and persistent. Inflorescence terminal corymbose cyme, few flowered, pubescent. Flowers White, hypanthium 0.75–1 x 0.5–0.75 mm, obovoid, puberulous, calyx lobes 1.5–1.75 x 1 mm long, subulate, obtuse, corolla 7–8 mm long, infundibuliform, glabrous out side, middle of the corolla tube villous, stamens 5; anthers 1–1.25 mm long. Ovary 0.5–0.75 x 0.5–0.6 mm, obovoid. Capsules 2 x 3–4.5 mm, glabrous, Seeds numerous, angular, glabrous, brown.

Specimens examined: INDIA. **Kerala.** Kollam district, Rosemala, 28.09.2012, Ginu Joseph & Hareesh.V.S. 11076 (KFRI); Ginu Joseph & Hareesh.V.S. 6696 (CALI); "Colatoorpolay", 28.11.1893, M.A Lawson 61 (CALI). **Tamil Nadu.** Theni district S. Karuppusamy & V.

Ravichandran Variattumottai stream side in the evergreen forests 10-08-2014, 1819. **Flowering:** September – November. **Distribution:** Sri Lanka, **India:** Kerala and Tamil Nadu.

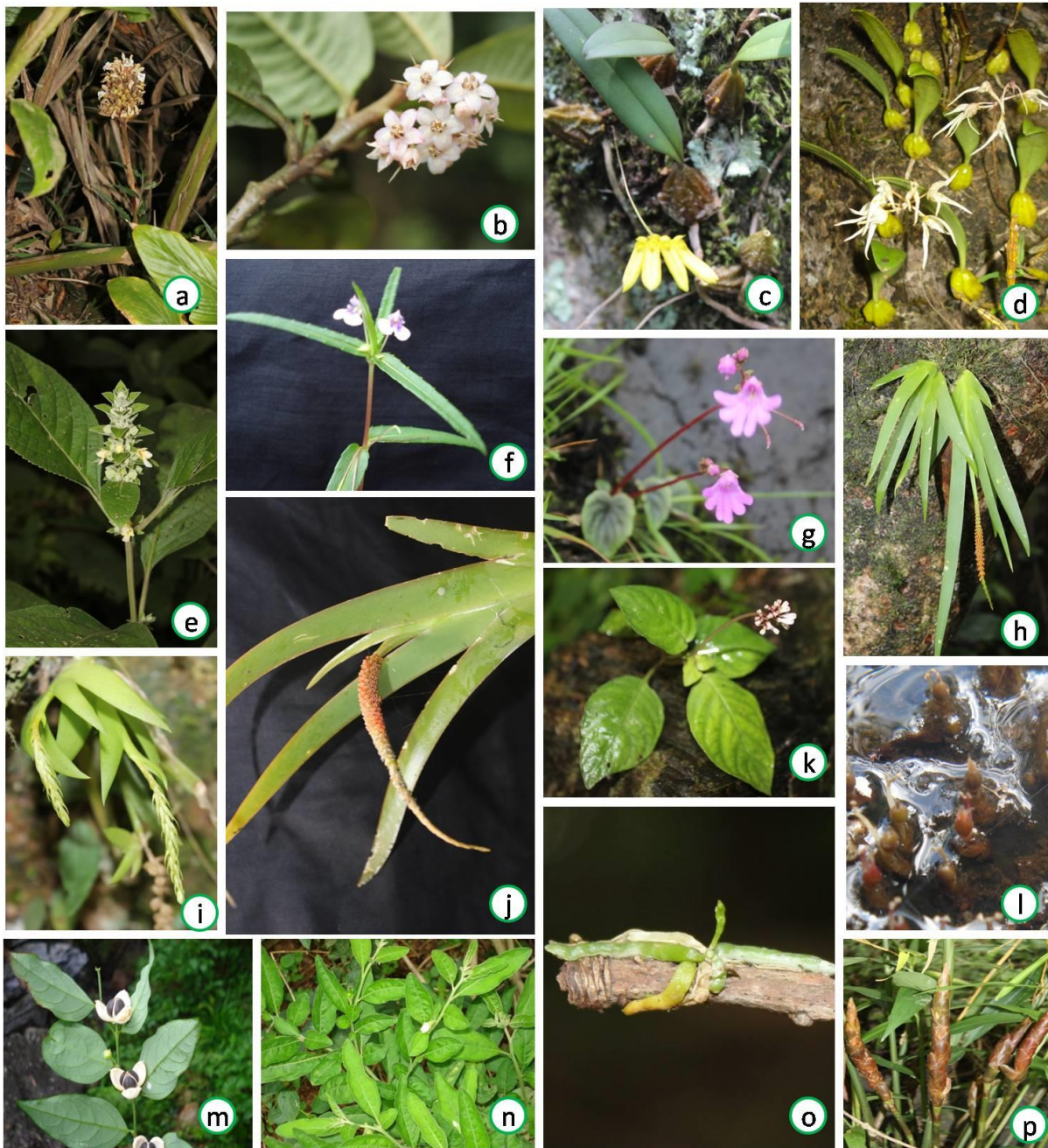


Figure 1 a. *Alpina fax*; b. *Ardisia stonei*; c. *Bulbophyllum aureoflavum*; d. *Bulbophyllum mysorensense*; e. *Gomphostemma keralensis*; f. *Impatiens munnarensis*; g. *Impatiens minae*; h. *Oberonia josephii*; i. *Oberonia longibracteata*; j. *Oberonia swaminathanii*; k. *Ophiorrhiza radicans*; l. *Polypleurum disciforme*; m. *Sauropus saksenanus*; n. *Solanum pseudocapsicum* var. *diflorum*; o. *Taeniophyllum scaberulum*; p. *Zingiber neesatum*

Polypleurum disciforme C.J.Mathew & Nileena Pl. Syst. Evol. 237: 211.2003; FWG 1: 727.2014.

Thaloid plant body, flattened, tightly attached with substratum. Flowers solitary, usually borne on large bracts with elongated stalk, zygomorphic. Bi-carpellate ovary, stigmas 2, subulate. Stamen 2 at the top of androphore. Tepals filiforme, basally at the both sides of androphore. Seeds minute, granulate.

Specimens examined: Tamil Nadu, Theni district S. Karuppusamy & V. Ravichandran 1291, 12-03-2-2013, Way to Eravangalaru, stream side, Maharajamettu. **Distribution:** Tamil Nadu and Kerala (Endemic).

Taeniophyllum scaberulum Hook. f., Fl. Brit. India 6: 77. 1890; Gamble, Fl. Pres. Madras 1448(1013). 1928; Rajesh et al., Rheedea 7:43.1997; Muktesh, Epiphytic Fl. Western Ghats 122. 1998; Sasidh., Fl. Periyar Tiger Reserve 439. 1998; Sasidh., Fl. Parambikulam WLS 338. 2002; Sathish & Manilal, Orchid Memories 224. 2004.

Leafless epiphytic herbs, roots subterete, 5-8 x 0.1 cm. Flowers creamy white, 4 x 2 mm, in 1.5-2 cm long, flexuous spikes; bracts 0.9 x 1 mm, ovate, acute, persistent. Sepals and petals united into a 6 toothed tube; lobes ovate, acute; lip ovate, acute, tip recurved, base saccate.

Specimen examined: Tamil Nadu, Theni district, S. Karuppusamy & V. Ravichandran 1275, 11-02-2013, Megamalai way to Chettiar kaadu. **Flowering & Fruiting:** February-June. **Distribution:** Kerala and Tamil Nadu.

Sauropus saksenanus Manilal et al., J. Indian Bot. Soc. 64: 294. 1985 (as saksenianus). Type: India, Kerala, Silent Valley, Nilikkal, 1150 m, 6 Aug. 1982, S. V. Prasannakumar 10398 (CAL holo, CALI iso). *Breynia saksenana* (Manilal et al.) Chakrab. & N.P. Balakr., comb. nov.

Glabrous shrubs with terete branches. Leaves ovate-lanceolate, acute to obtuse or truncate at base, caudate-acuminate at apex, thinly chartaceous to coriaceous often glaucous beneath. Stipules triangular-lanceolate to linear. Male flower: calyx cupular to obconic, deeply 6-lobed; anthers erect. Female flowers: Calyx segments orbicular to flabellate, rounded to obtuse at apex; ovary subglobose; style erect, bifid to midway. Fruits globose to pyriform.

Specimen examined: Tamil Nadu, Theni district, S. Karuppusamy & V. Ravichandran 11-03-2013, 1250, Megamalai. **Flowering and Fruiting:** March-December. **Distribution:** Kerala and Tamil Nadu (Endemic).

Solanum pseudocapsicum L. var. **diflorum** (Vellozo) Bitter, Bot. Jahrb. Syst. 54(5): 498 1917. *Solanum diflorum* Vellozo, Fl. Flumin. 2: t. 102. 1827.

Erect, branched shrubs to 2 m tall, stems, leaves, and inflorescences minutely tomentose with branched hairs. Leaves alternate, 2-6 x 1-2.5 cm, elliptic to narrowly oblong, base cuneate, decurrent, apex obtuse, margin entire or slightly wavy; lateral nerves 4 or 5 pairs; petiole 2-5 mm. Flowers leaf opposed or extra-axillary, solitary or rarely paired; pedicel 3-4 mm long, tomentose. Calyx green, tube 1.5 mm long, lobes ca. 2 mm long, oblong, reflexed. Corolla 1 cm across white with green shade at mouth, lobes elliptic, acute, slightly curved back. Staminal filaments less than 1 mm long, glabrous; anthers ca. 2 mm long, yellow. Fruiting pedicel ca. 1 cm, expanded at apex. Berry 1.5-2 cm across, orange-red, fleshy; fruiting calyx reflexed; seeds discoid, 2-3 mm in diam.

Specimens examined: Tamil Nadu, Theni district, S. Karuppusamy & V. Ravichandran 11-02-2013, 1249, Megamalai. **Flowering & fruiting:** April to October. (In study area Throughout the year). **Distribution:** Native of South America, cultivated and naturalized elsewhere. (South Africa, New Zealand, Australia, China).

Zingiber neesenum (Graham) Ramam. in Saldanha & Nicolson, Fl. Hassan Dist. 769. 1976; Manilal, Fl. Silent Valley 314. 1988; Ramach. & V.J. Nair, Fl. Cannanore Dist. 470. 1988; Sabu, Taxonomic Phylogenetic Stud. Zingiberac. 299. 1991; M. Mohanan & Henry, Fl. Thiruvanthapuram 474. 1994; Sasidh. et al., Bot. Stud. Med. Pl. Kerala 14. 1996; Sasidh. & Sivar., Fl. Pl. Thrissur For. 463. 1996; Sasidh., Fl. Shenduruny WLS 337. 1997; Sivar. & Mathew, Fl. Nilambur 713. 1997; Sasidh., Fl. Periyar Tiger Reserve 450. 1998; Sasidh., Fl. Parambikulam WLS 346. 2002; Mohanan & Sivad., Fl. Agasthyamala 711. 2002; Anil Kumar et al., Fl. Pathanamthitta 500. 2005; Sabu, Zingiberaceae and Costaceae of South India 235. 2006; Ratheesh Narayanan, Fl. Stud. Wayanad Dist. 866. 2009. *Alpinia neesiana* Graham, Cat Pl. Bombay 2-7. 1839. *Zingiber macrostachyum* Dalz. in Hook.'s J. Bot. Kew Gard. Misc. 4: 342. 1852; Hook. f., Fl. Brit. India 6: 247. 1892; Gamble, Fl. Pres. Madras 1490(1041). 1928.

Annual or perennial herbs; leafy stem 40-70 cm high, solitary or 2-4 together, erect. Leaves 25-35 x 3.5 cm, elliptic-oblong, acute at base, sessile; ligule 8 mm long, ovate. Spikes to 25 cm long, enlarging in fruit, terete on erect peduncle of 30-35 cm long; floral bracts 3 x 1.4 cm, obtuse, reddish. Flowers solitary in each bract. Calyx 2 cm long, glabrous. Corolla tube 2 cm long, lobes unequal, larger lobe 3.5 x 1.5 cm, elliptic, acute, glabrous. Labellum 3.5 x 3.5 cm, 3-lobed; lobes obtuse, glabrous, middle lobe emarginated. Ovary glabrous. Capsule 3-4 cm long, ellipsoid, smooth, red inside, 3-valved.

Specimen examined: Tamil Nadu, Theni district, S. Karuppusamy & V. Ravichandran, 22-05-2015, Kumili way to lower camp, Near Iraichal parai stream. **Flowering & Fruiting:** July-September. **Distribution:** Kerala and Tamil Nadu (Endemic).

3. DISCUSSION

Tamil Nadu state is lying between 8° 7' and 13° 35' N and 76° 15' and 88° 20'E and covers about 1,30,058 sq.km with occupying 4.08% of the total area of India in southern tip of Peninsula. The richness of the flora, Tamil Nadu stands first in all among the Indian states in the country with 5640 species. It includes 533 endemic species, 230 red listed species, 1559 medicinal plants species and

260 wild relatives of cultivated plant species (TNF, 2013). The rainfall pattern and climate prevails the amalgamation of varied types of flora with major forest types like tropical rain forests, deciduous forests, dry thorn forest, montane sholas, grass lands and mangrove forests. These plants are essential part of ecosystem and maintaining the local well being resources. After the Gamble's exploration, Matthew has covered his work Flora of Carnatic Tamil Nadu (1983-1999) and the Flora of Pulney hills (1986-1999) for Tamil Nadu state particularly. Several researchers reported the plant species addition to the Flora of Tamil Nadu. About 190 taxa belonging to 130 genera comes under 61 families added after the Gamble Flora (Betty and Ramachandran, 2014). The present record added the further additions to the number of plant taxa in the Tamil Nadu state.

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Conflict of Interest: The authors declare that there are no conflicts of interests.

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