

FLORA OF KANYAKUMARI WILDLIFE SANCTUARY, TAMIL NADU



SUJANA K. A.
Scientist D
BSI/SRC

Project Title: Flora of Kanyakumari Wildlife Sanctuary, Tamil Nadu

- Executing officials: Sujana K. A*., Scientist D (J.H.F. Benjamin, Scientist C) & R. G. Vadhyar, Botanical Assistant

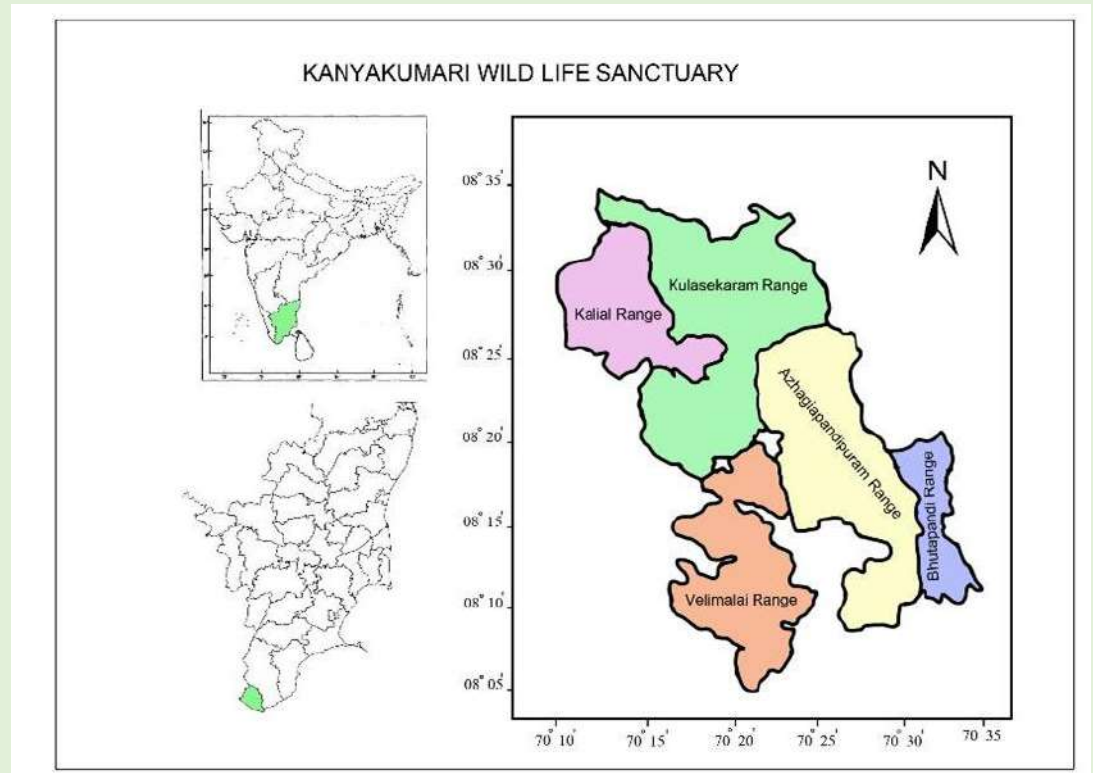
Period: 2016-2021 (* 04-03-2019 on wards)

OBJECTIVES

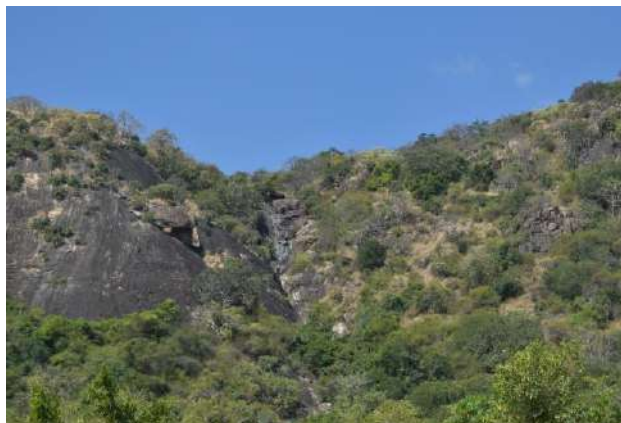
- To study flowering plant diversity of Kanyakumari Wildlife Sanctuary, Tamil Nadu.
- To bring out holistic picture of endemic and threatened plants distributed in the sanctuary.

STUDY AREA

- The sanctuary is bounded at **North** by Kalakkad-Mundanthurai Tiger Reserve, **East** by Tirunelveli District, **South** by Kodayar left bank channel and Thovalai channel and in **West** by Kerala State.
- The highest point is **1829.4** m at the trijunction of Mahendragiri, Kalakad and Veerapuli followed by Mahendragiri (1645.2 m), Mottaichi peak (1590.4 m) and Varaittumudi (1426.2 m)
- Located between $70^{\circ}10'$ - $77^{\circ}35'$ East longitudes and $08^{\circ}5'$ - $08^{\circ}35'$ North latitudes
- Total extent of the sanctuary is 402.39 Sq. KM



OVERVIEW OF FOREST TYPES



VEGETATION TYPES

- Southern Hilltop Tropical Evergreen Forests
- Southern montane wet grasslands
- West Coast Tropical Evergreen Forests
- Tirunelveli Semi Evergreen Forests
- Pioneer Euphorbiaceous scrub
- Moist Teak Forests
- Southern Moist Mixed Deciduous Forests
- Dry Teak Forests
- Southern Dry Mixed Deciduous Forests
- Dry Savannah Forests
- Carnatic Umbrella thorn forests
- Southern Thorn Forests
- Southern Thorn Scrub
- Southern Sub-tropical Hill Forests
- Wet bamboo brakes
- Inland wetlands and marshes
- Wetlands dominated by *Elaeocarpus*
- Riparian fringing forest

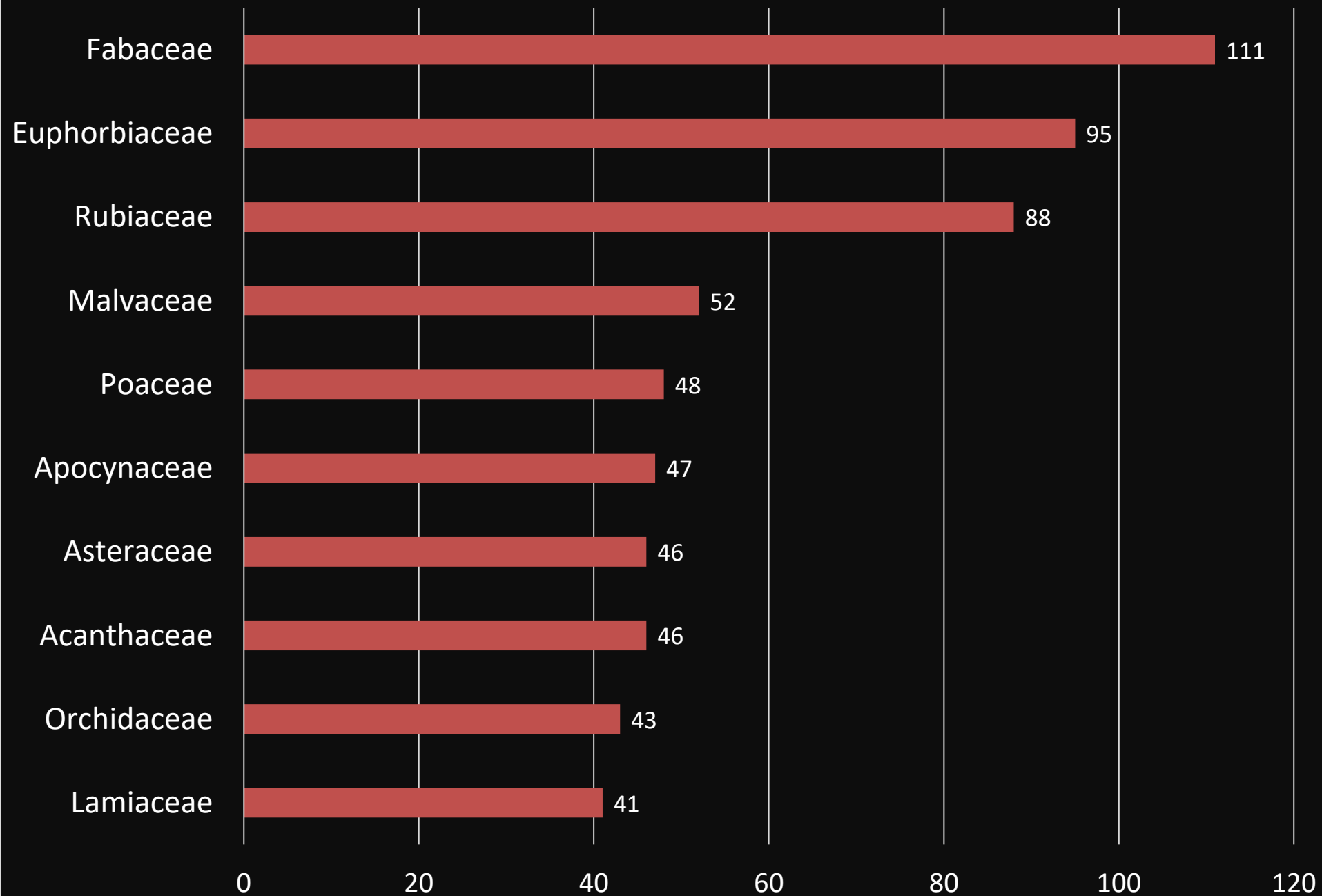


SUMMARY OF THE ACTIVITIES AND ACHIEVEMENTS

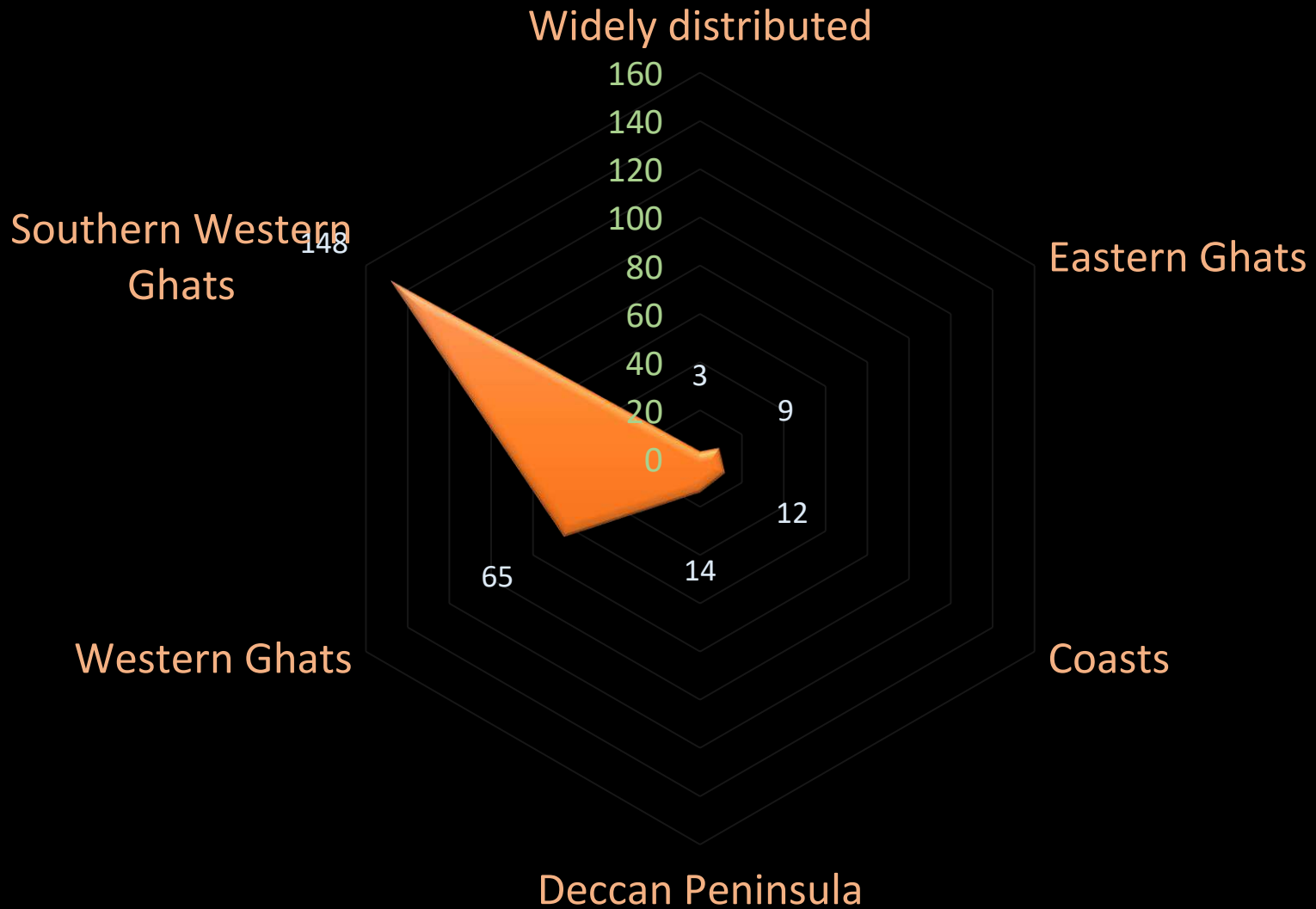
Activities	Achievements 2020-21	Achievements 2016-2021
Field surveys	1	11
Field numbers collected	180	2000
Species identified	637	1140(Dicots:946; Monocots: 194)
Species described and documented	954	1140
Herbarium processed	1180	11146
Labelling of sheets	99	4251
Publications	5+3	9+3
Final compilation of reports	Preparation of keys, formatting and editing of MS is under way. Final report will be submitted on or before 30-06-2021	



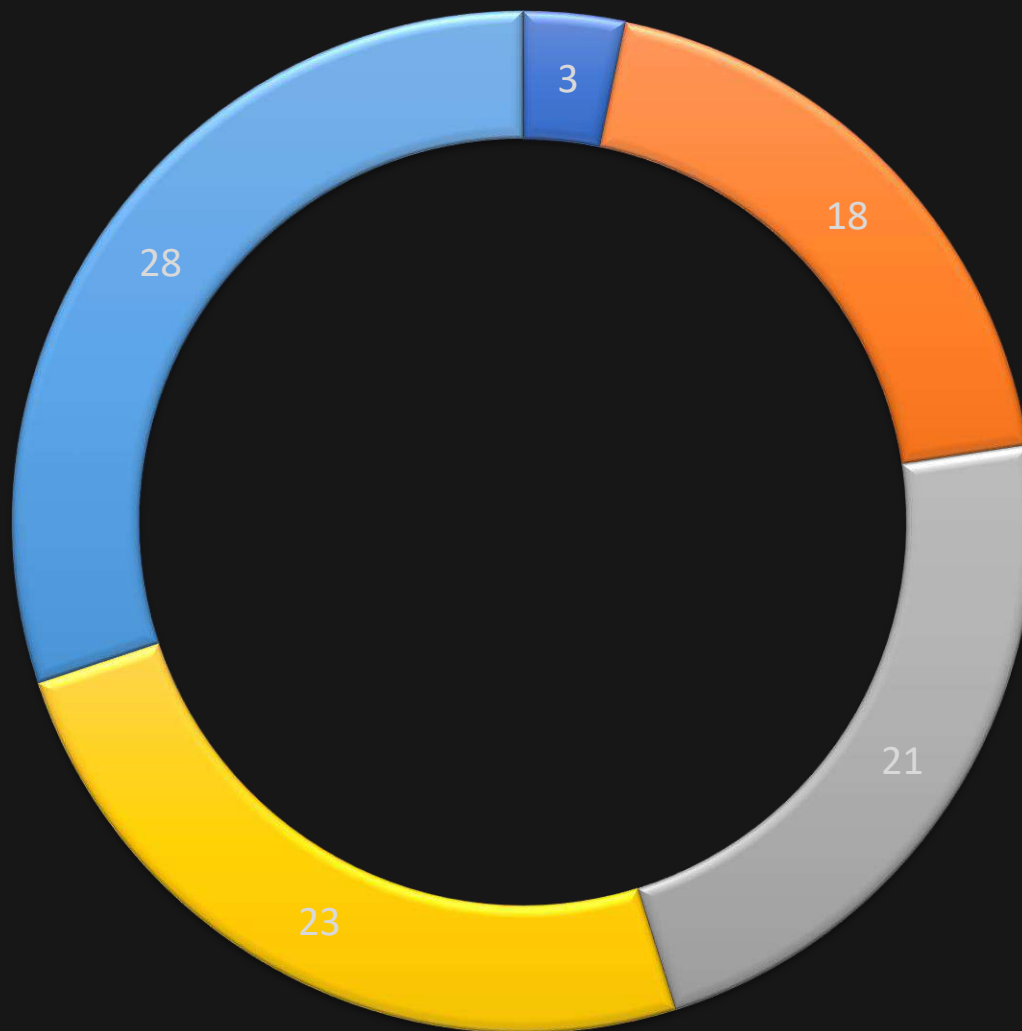
Ten best represented families



NO. OF ENDEMIC ANGIOSPERMS RESTRICTED IN DIFFERENT PHYTOGEOGRAPHICAL REGIONS



Number of Threatened Plants



■ Critically Endangered ■ Endangered ■ Vulnerable ■ Near Threatened ■ Least concern

MALVACEAE

Key to the genera

- 1a. Epicalyx present.....2
- b. Epicalyx absent.....**3. Sida**
- 2a. Fruit a schizocarp.....**5. Urena**
- b. Fruit a capsule.....3
- 3a. Calyx spathaceous, irregularly 2- or 3-lobed.....**1. Abelmoschus**
- b. Calyx not spathaceous, regularly 5-lobed.....4
- 4a. Style distally 5-branched.....**3. Hibiscus**
- b. Style unbranched.....**2. Azanza**

1. ABELMOSCHUS Medik.

Abelmoschus angulosus Wall. ex Wight & Arn., Prodr. Fl. Ind. Orient.: 53. 1834; T.K. Paul in B.D. Sharma & Sanjappa, Fl. India 3: 301. 1993; Sasidh., Biodiv. Doc. Kerala 6. Fl. Pl.: 46. 2004, incl. vars.; M. Mohanan & A.V.N. Rao in P. Daniel, Fl. Kerala 1: 400. 2005; T.S. Nayar & al., Fl. Pl. Kerala: 398. 2006, incl. vars. *Hibiscus angulosus* Steud., Nomencl. Bot. 1: 758, 1840; Mast. in Hook.f., Fl. Brit. India 1: 341. 1874; Dunn in Gamble, Fl. Madras: 97(70). 1915.

Shrub, to 2 m high. Leaves 3–7-lobed, 3–10.5 × 3.5–12 cm. Flowers solitary. Epicalyx 4–6-lobed. Calyx membranous, hairy. Corolla yellow with a purple centre, turning pink later. Staminal column ca. 2 cm long. Ovary 5-loculed; styles 5-armed. Capsules ovoid, ca. 4 cm long, beaked, hispid; seeds globose, hairy.

Fl. & Fr.: Aug.–Dec. *Habitat*: Moist deciduous and evergreen forests.

Specimen examined: Swamikuchimala, 05.11.2020, Sujana & Vadhyar 147057.

2. AZANZA Alef.

Azanza lampas (Cav.) Alef., Bot. Zeitung (Berlin) 19: 297. 1861. *Hibiscus lampas* Cav., Diss. 3: 154. 1787; Dunn in Gamble, Fl. Madras: 98(71). 1915. *Thespesia lampas* (Cav.) Dalzell, Bombay Fl.: 19. 1861; Mast. in Hook.f., Fl. Brit. India 1: 345. 1874; T.K. Paul in B.D. Sharma & Sanjappa, Fl. India 3: 301. 1993; Sasidh., Biodiv. Doc. Kerala 6. Fl. Pl.: 54. 2004; M. Mohanan & A.V.N. Rao in P. Daniel, Fl. Kerala 1: 430. 2005.

Shrub, to 2.5 m high. Leaves 3–5-lobed or entire, to 13 × 11 cm. Flowers solitary, axillary. Calyx cupuliform, 5-dentate. Corolla bright yellow with a maroon centre. Staminal column to 2 cm long. Ovary obconic, 5-loculed. Capsules ovoid, ca. 3 × 2 cm, stellate-hairy.

Fl. & Fr.: Sept.–Apr. *Habitat*: Evergreen and moist deciduous forests.

Specimen examined: Upper Victoria, 08.07.2020, Sujana & Vadhyar 147973

3. HIBISCUS L.

Key to the species

- 1a. Shrub; stipules auricled at base.....**2. H. surattensis**
- b. Climber; stipules not auricled at base.....**1. H. hispidissimus**

1. Hibiscus hispidissimus Griff., Not. Pl. Asiat. 4: 521. 1854; Sasidh., Biodiv. Doc. Kerala 6. Fl. Pl.: 49. 2004; M. Mohanan & A.V.N. Rao in P. Daniel, Fl. Kerala 1: 413. 2005. *H. furcatus* Roxb. ex DC., Prodr. 1: 449. 1824, non Willd. 1809; Mast. in Hook.f., Fl. Brit. India 1: 335. 1874; Dunn in Gamble, Fl. Madras: 97(70). 1915. *H. aculeatus* Roxb., Fl. Ind. 3: 20. 1832, non Walter 1788; T.K. Paul in B.D. Sharma & Sanjappa, Fl. India 3: 323. 1993.

Climber. Leaves 3–5-lobed, to 7.8 × 6.5 cm. Flowers solitary, axillary. Epicalyx 10–12, bifurcate. Calyx deeply 5-lobed; lobes lanceolate. Corolla yellow with a purple centre. Staminal column to 1.5 cm long. Ovary 5-loculed; stigmas capitate. Capsules ovoid, ca. 1.5 cm long, beaked with accrescent calyx, densely pubescent.

Fl. & Fr.: Sept.–Mar. *Habitat*: Dry and moist deciduous forests.

Specimen examined: Vellimalai, 23.02.2014, JHFB & RG V 137132.

2. Hibiscus surattensis L., Sp. Pl.: 696. 1753; Mast. in Hook.f., Fl. Brit. India 1: 344. 1874; Dunn in Gamble, Fl. Madras: 97(70). 1915; T.K. Paul in B.D. Sharma & Sanjappa, Fl. India 3: 327. 1993; Sasidh., Biodiv. Doc. Kerala 6. Fl. Pl.: 50. 2004; M. Mohanan & A.V.N. Rao in P. Daniel, Fl. Kerala 1: 422. 2005.

Shrub, prickly. Leaves 3–5-lobed; lobes linear to lanceolate, 3–7 × 4–10 cm. Flowers solitary, axillary. Calyx 5-lobed; lobes ovate to deltoid, hispid with recurved prickles. Corolla yellow with a deep purple centre; petals obovate. Staminal column glandular-hairy. Ovary subconical; style ca. 2.5 mm long; stigmas discoid. Capsules ovoid, ca. 1.5 × 1 cm, hairy.

Fl. & Fr.: Sept.–Feb. *Habitat*: Moist deciduous forests.

Specimen examined: Adakkad, 08.12.2017, Sujana & RG V 140572.

4. SIDA L.

Sida acuta Burm.f., Fl. Ind.: 147. 1768; Dunn in Gamble, Fl. Madras: 90(64). 1915; Manilal & Sivar., Fl. Calicut: 45. 1982; T.K. Paul in B.D. Sharma & Sanjappa, Fl. India 3: 281. 1993; Sasidh., Biodiv. Doc. Kerala 6. Fl. Pl.: 52. 2004; M. Mohanan & A.V.N. Rao in P. Daniel, Fl. Kerala 1: 387. 2005; *S. carpinifolia* sensu Mast. in Hook.f., Fl. Brit. India 1: 323. 1874, non L.f. 1782.

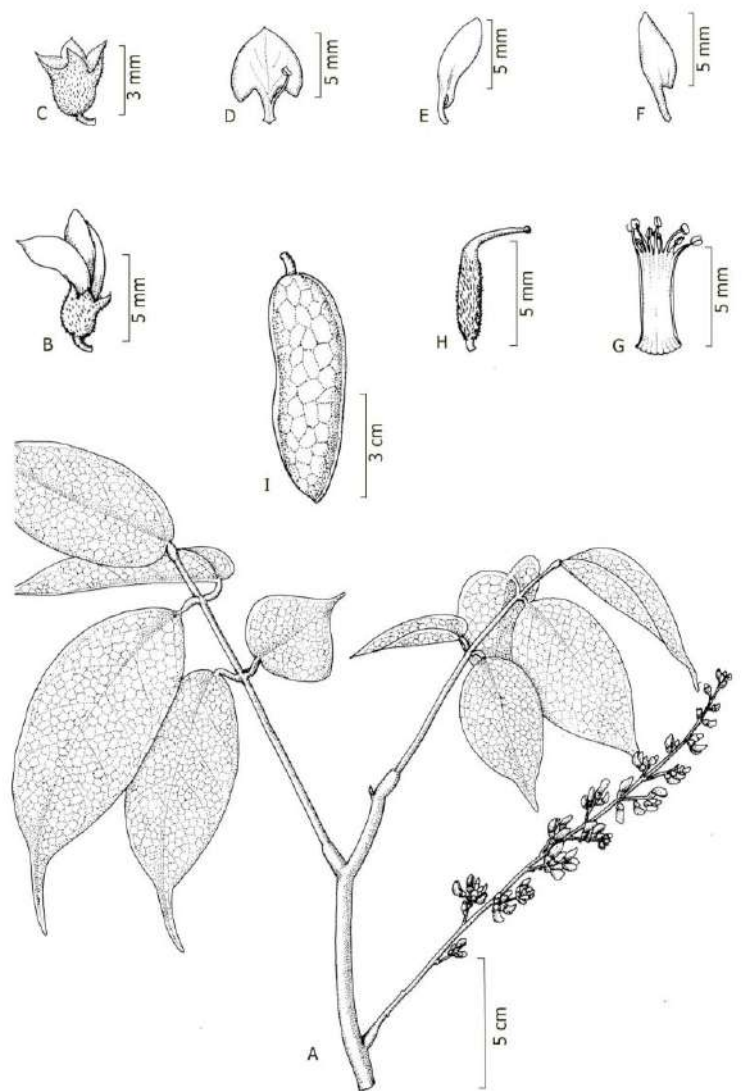


Fig. 57. *Kunstleria keralensis* C.N. Mohanan & N.C. Nair: A. Flowering twig; B. Flower; C. Calyx; D. Standard petal with vexillary adnate stamen; E. Wing petal; F. Keel petal; G. Staminal column; H. Pistil; I. Pod

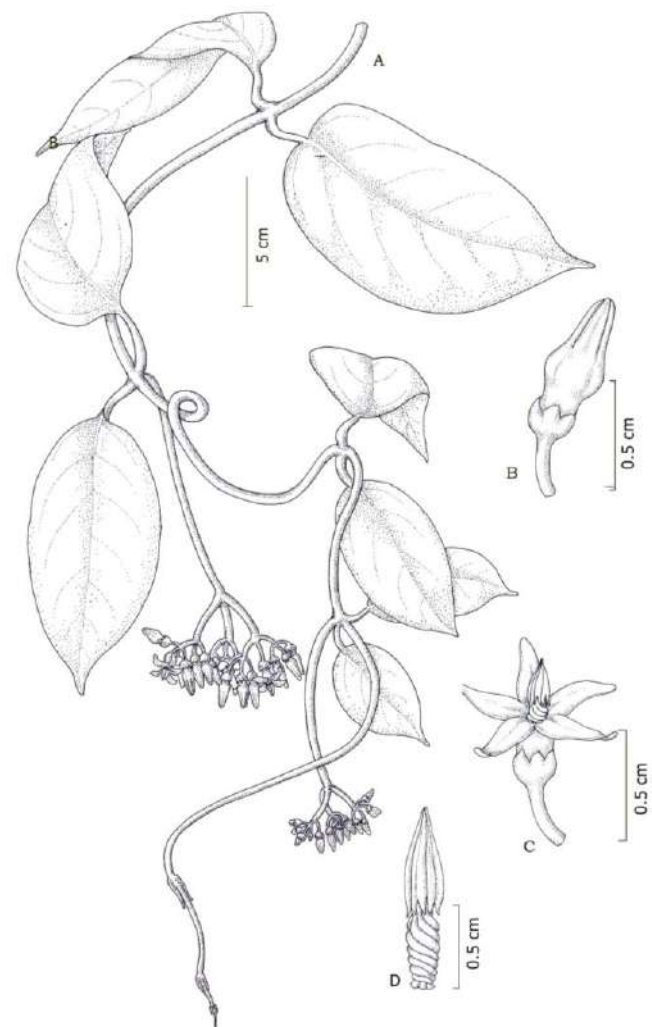


Fig. 63. *Parsonsia inodora* (Lour.) M. R. & S. M. Almeida: A. Flowering twig; B. Flower bud; C. Flower; D. Stamen

- **New species published**
 - *Goniothalamus sericeus* Sujana & Vadhyar
 - *Memecylon nervosum* Vadhyar, J.H.F. Benj. & Sujana
 - *Hiptage laxiflora* Sujana & Vadhyar

- **New species communicated for publication**
 - Proposed name: *Artabotrys comosus* Sujana & Vadhyar
 - Proposed name: *Glycosmis albicarpa* Sujana & Vadhyar

- **New distributional record to India from Kanyakumari WLS**
 - *Isonandra zeylanica* Jeuken
 - *Memecylon auratifolium* H. Perrier
 - *Pavetta thwaitesii* Bremek.

- **New distributional records to Tamil Nadu**
 - *Cynometra beddomei* Prain
 - *Elaeocarpus serratus* var. *weibelii* Zmarzty
 - *Begonia bachulkarii* Aitawade, Kattuk. & S.R.Yadav
 - *Momordica sahyadrica* Kattuk. & V.T.Antony
 - *Meistera fulviceps* (Thwaites) Skornick. & M.F.Newman
 - *Meistera newmanii* (M. Sabu & V.P. Thomas) Skornick.& M. F. Newman)
 - *Polyalthia longipedicellata* (Alister et al.) Shailajakumari et al.
 - *Cucumis silentvalleyi* (Manilal, T.Sabu & P.Mathew) Ghebret. & Thulin

Goniothalamus sericeus Sujana &
Vadhyar



Hiptage laxiflora Sujana & Vadhyar



Memecylon nervosum Vadhyar, J.H.F. Benj. &
Sujana



Artabotrys comosus Sujana & Vadhyar
(In review)



Glycosmis albicarpa Sujana & Vadhyar
(In Review)



NEW DISTRIBUTIONAL RECORDS TO INDIA



Isonandra zeylanica Jauken
Sapotaceae
Native to Sri Lanka



Memecylon auratifolium H.Perrier
Memecylaceae
Native to Madagascar

NEW DISTRIBUTIONAL RECORDS TO INDIA

Pavetta thwaitesii Bremek.

Rubiaceae

Native to Sri Lanka



NEW DISTRIBUTIONAL RECORDS TO TAMIL NADU



Cynometra beddomei Prain



Momordica sahyadrica
Kattuk. & V.T.Antony



Begonia bachulkarii
Aitawade, Kattuk. & S.R.Yadav



Polyalthia longipedicellata
(Alister et al.)
Shailajakumari et al.



Meistera newmanii (M.
Sabu & V.P. Thomas)
Skornick.& M. F. Newman)



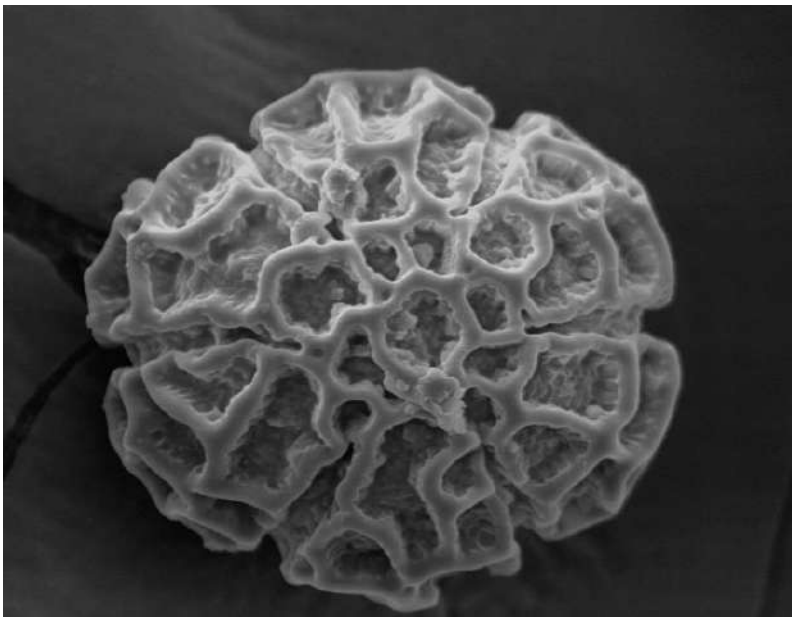
Meistera fulviceps (Thwaites)
Skornick. & M.F.Newman



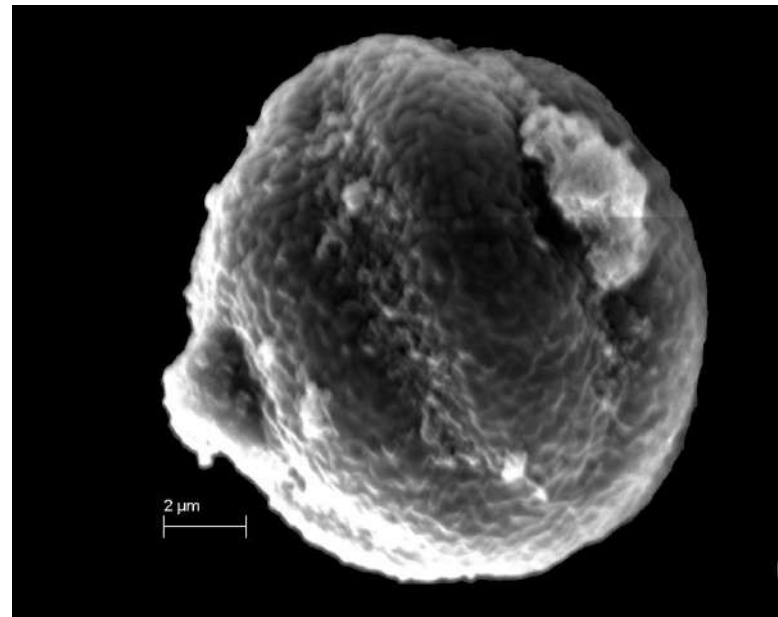
Elaeocarpus serratus var.
weibellii Zmarzty



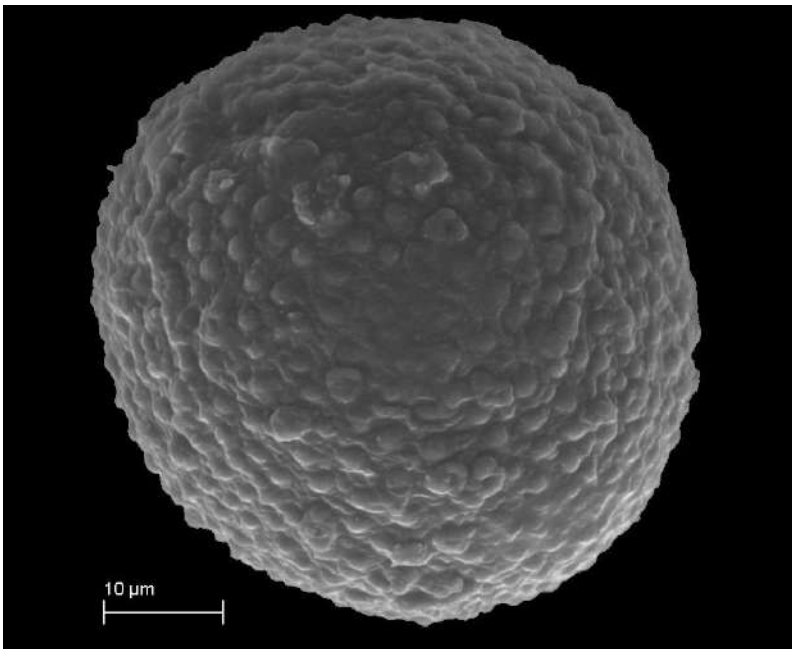
Cucumis silentvalleyi
(Manilal, T.Sabu &
P.Mathew) Ghebret. &
Thulin



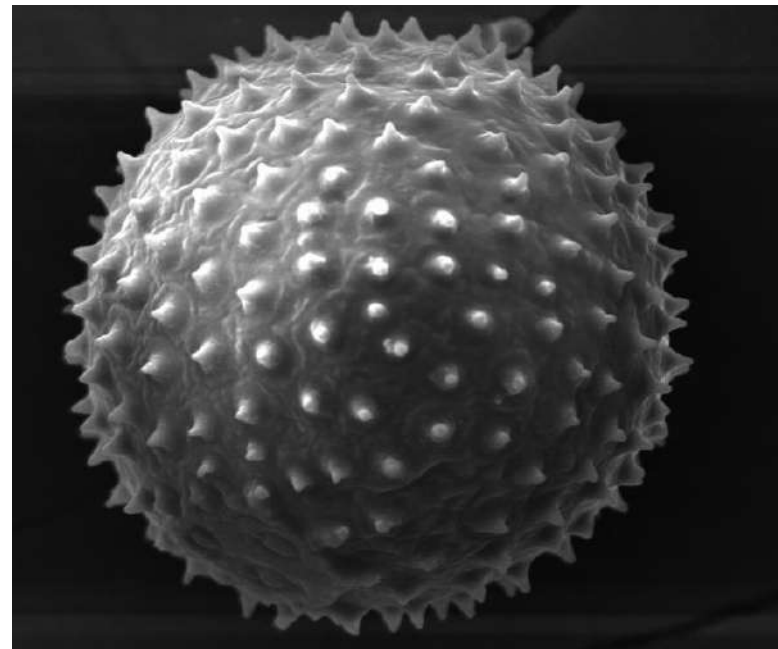
Syncolostemon comosus (Wight ex Benth.) D.F.Otieno



Memecylon nervosum Vadhyar, J.H.F. Benj. & Sujana

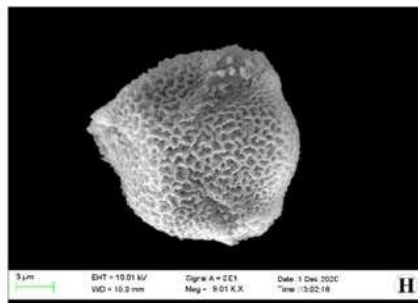
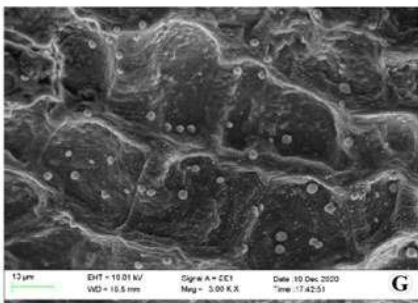
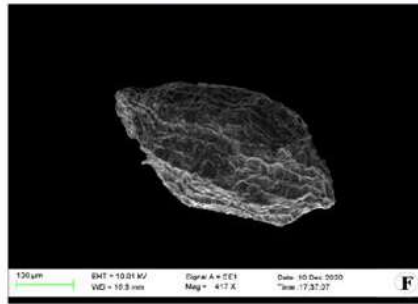


Meistera fulviceps (Thwaites) Skornick. & M.F.Newman



Meistera newmanii (M. Sabu & V.P. Thomas) Skornick.& M. F. Newman

Henckelia missionis (Wall. ex R.Br.) A.Weber & B.L.Burtt



Augmentation of seed character

Syncolostemon comosus (Wight ex Benth.) D.F.Otieno



Endemic

Memecylon heyneanum Benth. ex Wight & Arn.



Endemic

Milusa manickamiana Murugan



Endemic to Tamil Nadu

Exacum courtallense Arn.



Endemic

Orophea uniflora Hook.f. &
Thomson

A close-up photograph of a branch of *Orophea uniflora*. The branch is brown and woody, with several large, ovate, bright green leaves. Two round fruits are attached to the branch. The upper fruit is black and glossy, while the lower fruit is bright red and also glossy. The background is dark, making the plant parts stand out.

Endemic

Poeciloneuron indicum Bedd.

A detailed close-up photograph of the inflorescence of *Poeciloneuron indicum*. The image shows a dense cluster of small, light-colored buds on a pale, branching stem. A single flower is in full bloom, revealing five white petals and a central cluster of bright orange stamens. The background is dark and out of focus, highlighting the intricate structure of the plant's reproductive parts.

Endemic

Acrotrema uniflorum Hook..



Endemic

Argostemma courtallense Arn



Endemic

Impatiens travancorica Bedd.



Endemic

Belosynapsis kewensis Hassk.



Endemic

Anaphyllum beddomei Engl.



Endemic

Porpax nana (A.Rich.) Schuit., Y.P.Ng & H.A.Pedersen



Endemic

Pimpinella wallichiana (Miq.) Gandhi



Endemic

Goniothalamus rhynchantherus Dunn



Endangered

Homalium jainii A.N.Henry & Swamin.



Endangered

Saprosma fragrans (Bedd.) Bedd.

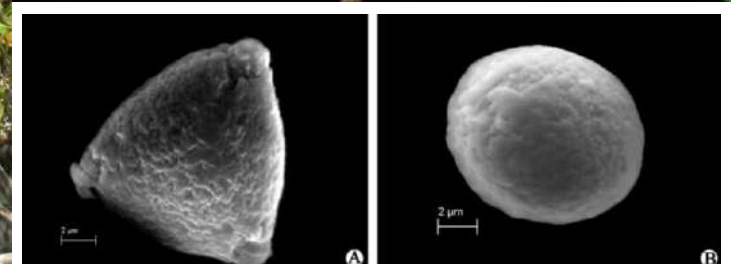


Vulnerable

Eugenia rottleriana Wight & Arn.



Vulnerable



Functionally androdioecious
flowers in *Eugenia*

Hydnocarpus alpinus Wight

Vulnerable



Coscinium fenestratum (Gaertn.) Colebr.



Data Deficient

Trichopus zeylanicus Gaertn.



Begonia cordifolia (Wight)
Thwaites



Narrowly distributed

Zingiber neesatum (J.Graham) Ramamoorthy



Narrowly distributed

Ceropegia decaisneana Wight



Narrowly distributed



Uvaria macropoda Hook.f. & Thomson





Impatiens disotis Hook. f.



Impatiens campanulata Wight

Salacia fruticosa Wall. ex M.A.Lawson



Major Threats



- Invasive plants
- Widening of road towards estates
- Over grazing
- Plantation activities

PUBLICATIONS

- VADHYAR, R.G., J.H.F. BENJAMIN AND K.A. SUJANA 2020. *Memecylon nervosum* (Melastomataceae), A new Species from South India. *Edinburgh Journal of Botany* 77(3): 403–411.
- SUJANA, K.A. AND R.G. VADHYAR 2020. *Hiptage laxiflora* (Malpighiaceae), a new species from South India. *Annales Botanici Fennici* 58: 27-31.
- SUJANAK. A. & R. G. VADHYAR (2020). A new species of *Goniothalamus* (Annonaceae) from the Western Ghats of Tamil Nadu, India. *Taiwania* 65(2): 176–180.
- SUJANA, K.A. AND R.G. VADHYAR 2019. Notes on distribution, conservation and pollen morphology of an endemic and threatened wild ginger. *Journal of Non-timber forest Products* 26(2): 89–91.
- SUJANA, K.A. AND R.G. VADHYAR 2020. Ginger herb *Meistera fulviceps*: a new distribution record for Tamil Nadu. *Plantasia* #18, In: *Zoo's Print* 35(4): 15–17.
- SUJANA, K.A. AND R.G. VADHYAR 2020. *Polyalthia longipedicellata* (Annonaceae): An addition to the flora of Tamil Nadu. *Indian Forester* 146 (8):778-779.

- SUJANA, K.A. AND R. G. VADHYAR (2019). *Paramignya scandens* (Griff.) Craib (Rutaceae): A New Distributional Record to Western Ghats. *Indian Forester*, 145(12): 1216-1217.
- SUJANA K.A. & R. G. VADHYAR (2019). Guinea Guava (Know Your Plant), *ENVIS News Letter* 24(1): 3.
- BENJAMIN J.H.F. & R.G. VADHYAR (2018). *Julostylis* (Malvaceae): A New Generic Record for Tamil Nadu. *Indian J. Forestry* 41(3): 269– 271.

Communicated

- VADHYAR R. G. BHOOPATHIAYANAR M. & K. A. SUJANA. Augmentation of description, distribution, population and conservation status of *Henckelia missionis* – an endemic species of Tamil Nadu (Submitted to JETB).
- SUJANA K. A. & R. G. VADHYAR. A new species of *Artabotrys* (Annonaceae from southern Western Ghats, India (*Garden's Bulletin Singapore*)
- SUJANA K. A. & R. G. VADHYAR. *Glycosmis albicarpa* (Rutaceae: Clauseneae), a new species of from southern Western Ghats, India (*Nordic Journal of Botany*).

ADVISORY SERVICES WITH TAMIL NADU FOREST DEPARTMENT

- Interim reports submitted to DFO, Kanyakumari
- Forest range wise information with photographs on dominant plants KKWLS given to RFOs
- A list of identified plants submitted to DFO Kanyakumari for including management plan and for formulating conservation strategies



Misty MountainsMissing species



We are in News!!!!

പശ്ചിമഘട്ടത്തിൽ മൂന്ന് സസ്യങ്ങൾ കണ്ടെത്തി

എ.കെ. ശ്രീജിത്ത് കല്യാ

▶ ആത്മച്ചക്കയുടെയും കായാമ്പൂവിന്റെയും കുടുംബത്തിൽപ്പെട്ട രണ്ടുചെടികൾ ഉൾപ്പെടെ മൂന്ന് ചെടികൾ ഗവേഷകർ കണ്ടെത്തി.

വലിയ മഞ്ഞനിറത്തിലുള്ള കാമ്പൂണ്ടാകുന്ന യൂജിനിയ സ്റ്റിയറോകാർപ (Eugenia sphaerocarpa) മലബാർ വന്യതൃഗസങ്കേതത്തിൽനിന്നും, ആത്മച്ചക്കയുടെ കുടുംബത്തിൽപ്പെട്ട ഗോണിയോതലാമസ് സെരിസിയസും (Goniothalamus seriseus), കായാമ്പൂവിന്റെ കുടുംബമായ മെമിസെയ്ലോൺ നെർവോസം (Memycylon nervosum) എന്നിവ കന്യാകുമാരി വന്യതൃഗസങ്കേതത്തിൽനിന്നുമാണ് കണ്ടെത്തിയത്.

കേന്ദ്ര ബൊട്ടാണിക്കൽ സർവ്വേ ഓഫ് ഇന്ത്യയിലെ മലയാളി ഗവേഷകരായ ഡോ. കെ.എ. സുജനയും രാകേഷ് ജി. വാധ്യാരുമടങ്ങിയ സംഘമാണ് ഇവ കണ്ടെത്തിയത്.

മിർട്ടേസിയ (Myrtaceae) സസ്യ കുടുംബത്തിലെ അംഗമാണ് 'യൂജിനിയ സ്റ്റിയറോകാർപ'. അതിൽ 26 ഇനങ്ങളാണ് ഇന്ത്യയിൽ ഇതുവരെ കണ്ടെത്തിയിട്ടുള്ളത്.



New plant species found in Western Ghats

More detailed botanical exploration of the area is crucial for documentation

E.M. MANOJ KALPETTA

A team of scientists of the Botanical Survey of India (BSI) have reported the discovery of three new plant species in the evergreen forest patches of the southern end of the Western Ghats in Kerala and Tamil Nadu.



Eugenia sphaerocarpa.



Goniothalamus seriseus.



Memycylon nervosum.

The three species - *Eugenia sphaerocarpa* of the Myrtaceae or Rose apple family, *Goniothalamus seriseus* of the Annonaceae family of custard apple and *Memycylon nervosum* of the Melastomataceae (Kayambo or Kaasavu in local parlance) family - were discovered during a recent exploration led by BSI scientist K.A. Sujana.

Edible fruits
A good population of *Eugenia sphaerocarpa* is growing in the Kakkayam area of the

Malabar wildlife sanctuary in Kerala above 800m. The epithet '*sphaerocarpa*' denotes to the large, showy lemon-yellow spherical fruits. The fruits of *Eugenia* species are known for their palatability.

A small number of *Goniothalamus seriseus* plants has been found in the Kanyakumari wildlife sanctuary in Tamil Nadu at an altitude of 1400m. Mature flowers with cha-

racteristic greenish-yellow to beige petals are fragrant while the fruits are very showy and an attractive golden yellow in colour. *Sericeus* refers to the presence of dense silky hair on petals, Dr. Sujana explained.

A small population of *nervosum* was also found at the same sanctuary at an altitude between 700-900m with more than 10 sub-populations located along the banks of a perennial rivulet, Ragesh G. Vadhyar, a re-

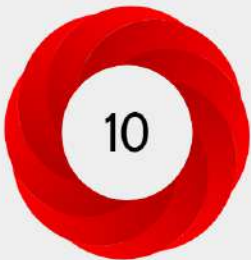
searcher involved in the study, said. The species has showy purplish-blue flowers and mauve to purplish red fruits. *Nervosum* refers to the presence of prominently raised lateral and intramarginal veins on the lower surface of the lamina, Mr. Vadhyar said.

As these species are small trees or shrubs, a more detailed botanical exploration of the Western Ghats is crucial to document them, Dr. Sujana said.



MEMECYLON NERVOSUM (MELASTOMATACEAE), A NEW SPECIES FROM SOUTH INDIA

Overview of attention for article published in Edinburgh Journal of Botany, April 2020



SUMMARY	News
<p>Title MEMECYLON NERVOSUM (MELASTOMATACEAE), A NEW SPECIES FROM SOUTH INDIA</p> <p>Published in Edinburgh Journal of Botany, April 2020</p> <p>DOI 10.1017/s0960428620000050</p> <p>Authors R. G. Vadhyar, J. H. F. Benjamin, K. A. Sujana</p>	<p>View on publisher site</p> <p>Alert me about new mentions</p>

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