

Ficus virens Aiton var. *dispersa* (Moraceae): a new record for India

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Abstract. An interesting specimen of *Ficus* L. was collected from the Idukki district of Kerala. Based on detailed examination with protologues, literatures and type specimens, the plant was identified as *Ficus virens* Aiton var. *dispersa* Chantararas. This is the first report on the occurrence of this taxon in India. A detailed description, photographs, illustrations, comparison with allied taxa and identification key are provided.

Key words: *Ficus*, Idukki District, Kerala, new addition, *Urostigma*

1. Introduction

The genus *Ficus* L., belonging to the family Moraceae has a world-wide distribution, mainly in the tropics and subtropics (Berg & Corner 2005). *Ficus* is the most abundant and diverse genus in the family Moraceae. Its representatives are commonly called figs or fig trees. They support a large number of animals, due to their nutrient rich fruits available all throughout the year as a source of food, and are hence considered to be keystone species (Vanitharani *et al.* 2009; Kumar *et al.* 2011). The global diversity of figs accounts for about 750 species. In India, the genus is represented by 91 species and 24 infraspecific taxa (Chaudhary *et al.* 2012).

The genus is divided into six subgenera, among which the subgenus *Urostigma* is the dominant one with about 280 species (Berg 2004). *Ficus virens* Aiton, belonging to the subgenus *Urostigma*, is a species with worldwide distribution. This species is highly variable in terms of its vegetative and floral morphology. *Ficus virens* var. *dispersa* is a new variety of *F. virens*, distinguished from *F. virens* complex (Chantarasuwan *et al.* 2013).

During the field explorations in the forests of Idukki district in Kerala, the authors collected an interesting specimen of *Ficus*. The plant differed from the known varieties of *F. virens* reported so far from the country and was similar to *F. prolixa*. Based on detailed observations, literature reference (Gamble 1925; Corner 1965; Sasidharan & Sivarajan 2004; Chantarasuwan *et al.* 2013; Nair *et al.* 2021) and herbarium references in K, L, MH, KFRI, TBGT and CALI, the plant was identified as *Ficus virens* var. *dispersa*. The acronyms are according to the NYMG Index Herbarium. This taxon has not been so far reported from India and is a new record for the floristic diversity of the country. A detailed description, identification key, photographs, illustrations, and comparison with other varieties of *F. virens* reported from Kerala and with the similar taxon *F. prolixa* are provided in this article.

2. Taxonomic treatment

Ficus virens Aiton var. *dispersa* Chantararas. Syst. Bot. 38(3): 681. 2013.

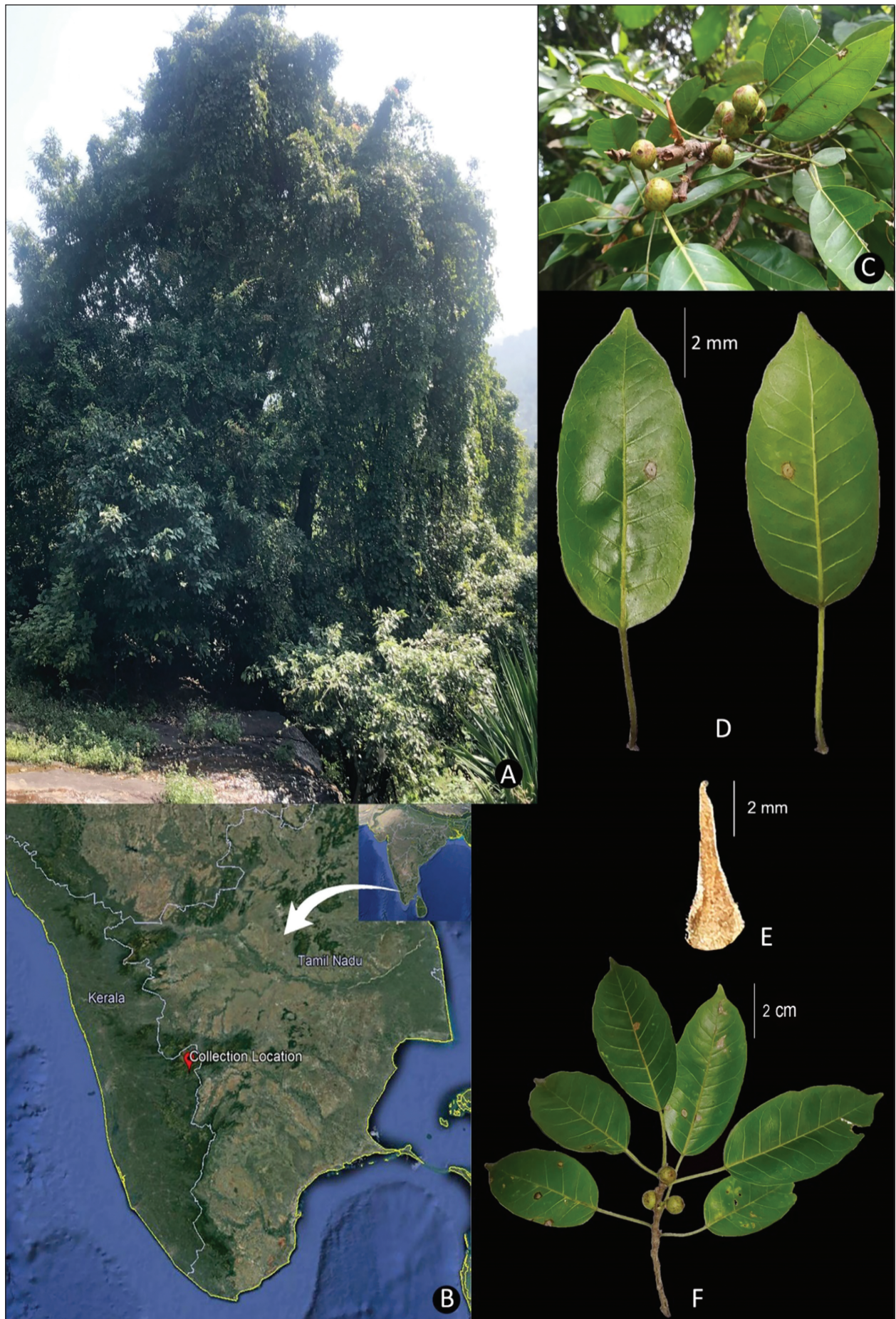


Fig. 1. *Ficus virens* Aiton var. *dispersa* Chantaras

Explanations: A – habit, B – collection site location, C – branch, D – leaf, E – stipule, F – twig (photos and the map by S. S. Nair)

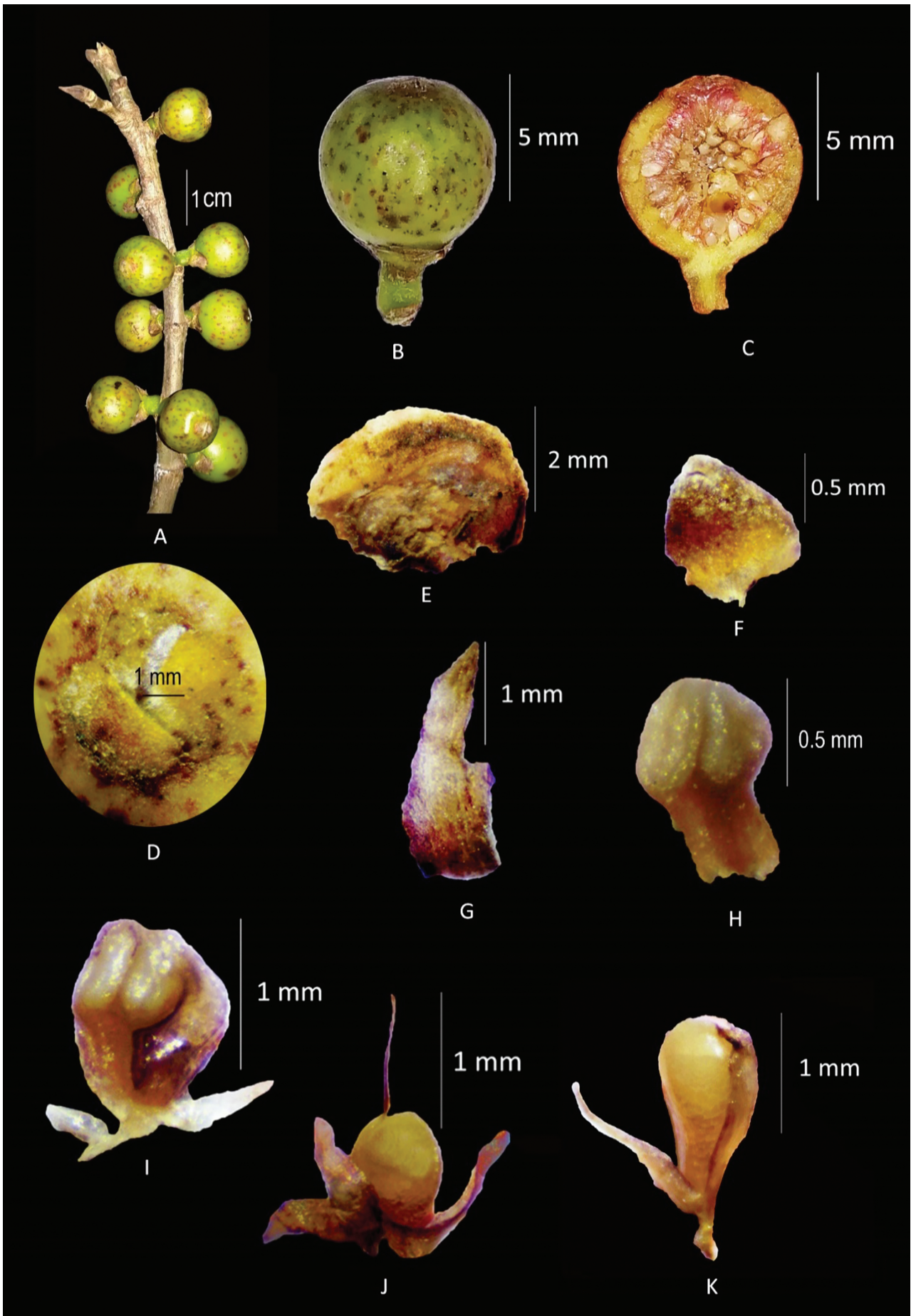


Fig. 2. *Ficus virens* Aiton var. *dispersa* Chantaras (photos by. S. S. Nair)

Explanations: A – figs, B – receptacle, C – receptacle LS, D – ostiole, E – basal bract, F – outer ostiolar bract, G – inner ostiolar bract, H – anther, I – male flower, J – female flower, K – gall flower

Type: Papua New Guinea. New Britain: West Nakanai, Rapuri village near Cape Hoskins, probably 5 Aug 1954, A. Floyd NGF 6457 (Holotype: L; isotypes: K, LAE).

Description: Tree up to 15 m in height; aerial roots absent. Bark smooth lenticellate, brown coloured. Young twigs terete, brown, glabrous. Inter node 0.4-1.2 cm. Stipules ovate, margins entire, 0.4-0.8 cm, apex acute, base truncate, glabrous, pale green-brown. Petiole terete, 2.6-4.8 cm, glabrous, pale green. Leaves

alternate, spiral, margins entire, ovate-lanceolate, 5.9-11.8 × 3.6-5.8 cm, acumen 0.6-1.2 cm, apex cuspidate, base rounded-obtuse-cuneate, glabrous, pale red when young, green on maturity, subcoriaceous, brochidromous venation, lateral veins 7-9 pairs. Receptacles axillary, solitary or in pairs, monoecious, pedunculate, internal hairs present. Peduncle 0.3-0.4 cm, glabrous, pale green. Basal bracts present, 3, free, 0.3-0.4 cm, puberulous. Syconium 0.7-1.1 cm across, globose, glabrous, pale green to purple coloured with spots. Ostiole

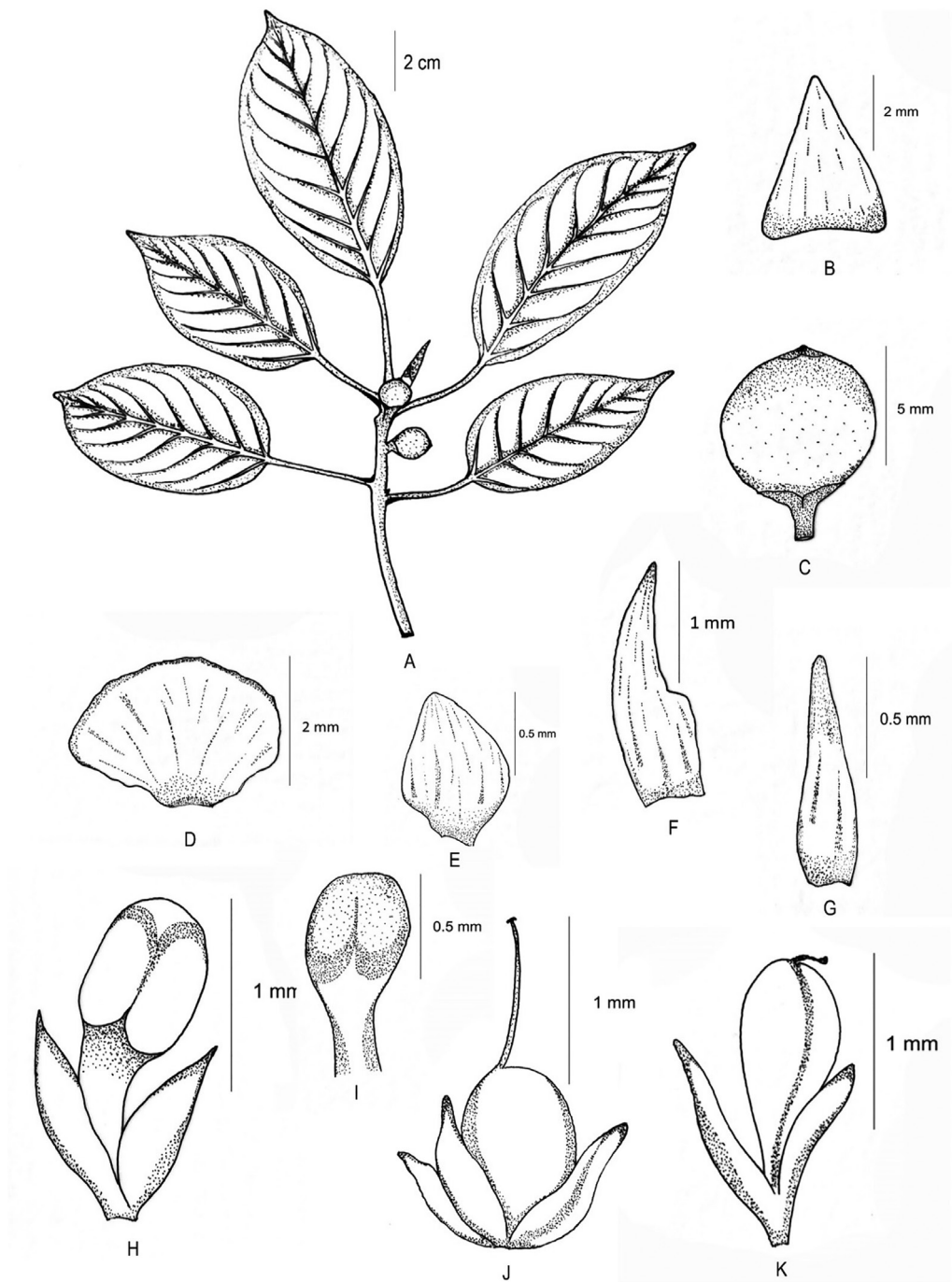


Fig. 3. *Ficus virens* Aiton var. *dispersa* Chantaras (drawings by S. S. Nair, based on the specimen collected from the Idukki District)

Explanations: A – habit, B – stipule, C – receptacle, D – basal bract, E – outer ostiolar bract, F – inner ostiolar bract, G – tepal, H – male flower, I – anther, J – female flower, K – gall flower

0.1-0.2 cm in diameter, outer bracts present, free, ovate, 0.1 cm long, glabrous, pale brown. Inner bracts present, free, linear, 0.2 cm long, glabrous, pale red-brown. Male flowers dispersed, 1.2 mm long, sessile, tepals, 4, free, 0.75 mm long, linear, glabrous, pale red coloured, stamen 1, anther 0.5 mm, filament 0.5 mm. Female flowers at the base, 4 mm long, sessile, tepals 3, free, 2 mm long, linear, stigma bifid, ovary 1 mm long, obovoid, glabrous, pale brown coloured. Gall flowers scattered, 2 mm long, tepals 3, fused, 1.5 mm long, linear, stigma short, ovary 1 mm long, obovoid, glabrous, pale brown coloured (Figs. 1-3).

E t y m o l o g y : The term 'virens' refers to the green colour of leaves. The variety was named 'dispersa', probably due to the dispersed arrangement of male flowers within the receptacle.

A f f i n i t y : Numerical taxonomic treatment considering 45 reliable characters was used to compare three closely related taxa with *Ficus virens* var. *dispersa* using PAST version 2.17 software. The dendrogram

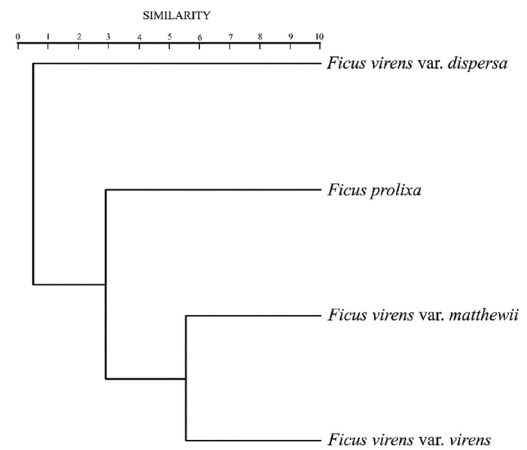


Fig. 4. Dendrogram generated by PAST version 2.17 software showing affinity of *F. virens* var. *dispersa* with its allied taxa

based on similarity clustering (Fig. 4) revealed that, *F. virens* var. *dispersa* shows considerable dissimilarity (above 90 %) from its allied taxa. It differs from other

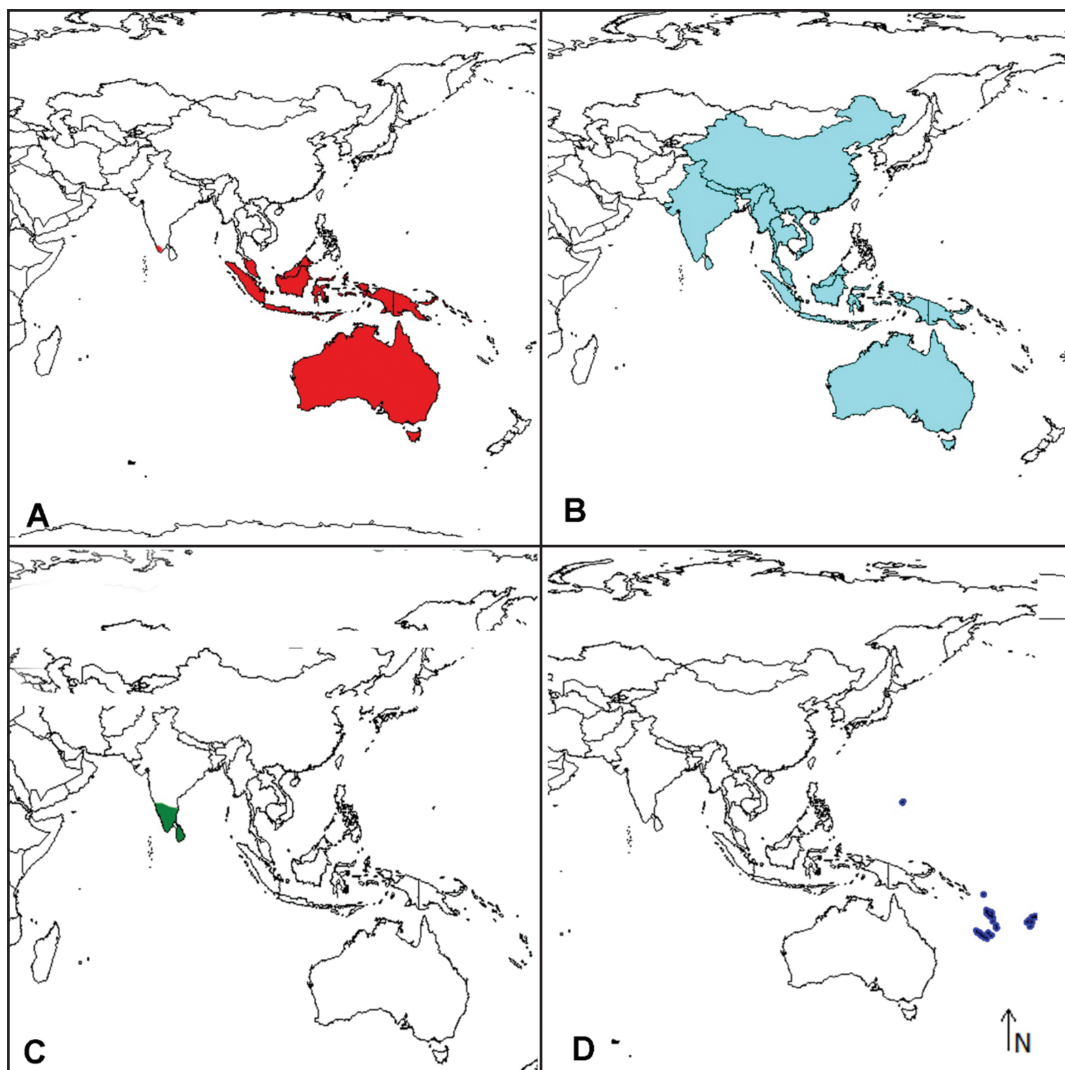


Fig. 5. Distribution maps of (A) *Ficus virens* var. *dispersa*, (B) *Ficus virens* var. *virens*, (C) *Ficus virens* var. *matthewii*, (D) *Ficus prolixa* (maps prepared by S. S. Nair using DIVA-GIS software)

varieties of *Ficus virens* in such characters as: the size and indumentum of stipule, length of petiole, size, shape, apex and the number of lateral veins of lamina, syconium size and position of male flowers. *F. virens* var. *matthewii* shows much similarity with *F. virens* var. *virens* (about 45%). *F. prolixa* shows about 70 % similarity with *F. virens* var. *virens* and *F. virens* var. *matthewii* clade.

Habitat: Semi evergreen and deciduous forest.

Fruiting and Flowering: December-February.
Distribution: *Ficus virens* is one of the most widely distributed taxa in the genus *Ficus* (Corner 1965). This variety has been reported so far from Malaysia, Indonesia, Papua New Guinea and East Australia (Fig. 5).

Taxa Comparison

The comparison of the studied taxa is presented in Table 1.

Table 1. Comparison of characters of *F. virens* var. *dispersa* with allied taxa

Character	<i>Ficus virens</i> var. <i>dispersa</i>	<i>Ficus virens</i> var. <i>virens</i>	<i>Ficus virens</i> var. <i>matthewii</i>	<i>Ficus prolixa</i>
Habit	Tree up to 15 m	Tree up to 35 m	Tree up to 35 m	Tree up to 20 m
Stipule size	0.4-0.8 cm	0.25-1.5 cm	0.7-1.5 cm	0.4-1.2 cm
Indumentum of stipule	Glabrous	Glabrous or puberulous	Tomentose	Glabrous or puberulous
Petiole Size	2.6-4.8 cm	1.6-6.1 cm	1.5-11.2 cm	0.9-2.5 cm
Leaf shape	Ovate-lanceolate	Ovate to elliptic to lanceolate to obovate	Lanceolate-elliptic-lance ovate-ovate	Ovate to elliptic to oblong
Leaf size	5.9-11.8 × 3.6-5.8 cm	5.2-18.5 × 2.5-8.5 cm	5.8-20.5 × 3.1-7.2 cm	5.5-13.5 × 2.5-7.4 cm
Apex	Cuspidate to acuminate	Sub acuminate- acute-obtuse	Acute-acuminate-obtuse	Acute to sub acuminate
Base	Round-obtuse-cuneate	Cuneate-cordate-obtuse-sub attenuate	Attenuate-cuneate-obtuse-rounded-truncate	Cuneate-obtuse-rounded-truncate-(sub)cordate
No. of lateral veins	7-9	8-12	10-12	7-11
Vein branching	Unbranched	Branched or unbranched	Unbranched	Branched
Peduncle size	3-4 mm	2.5 mm	2-3 mm	3 mm
Basal bract size	3-3.5 mm	1.5-4 mm	3-5 mm	2.5-4 mm
Indumentum of basal bracts	Glabrous	Glabrous or minutely puberulous	Glabrous	Minutely puberulous
Syconium size	0.7-1.1 cm when fresh	0.4-1.5 cm when dry	0.4-2.2 cm when fresh	0.6-0.9 cm. when dry
Syconium shape	Globose	Sub globose	Obovoid	Sub globose
Indumentum of syconium	Glabrous	Glabrous or minutely puberulous	Glabrous	Minutely puberulous
Ostiule size	1.5-2.5 mm	2-4 mm	3-4 mm	2-3 mm
Position of male flowers	Abundant around the ostiule and slightly dispersed	Near ostiule or dispersed	Few near ostiule	Dispersed
No of tepals	4	3-4	3-4	2-3
Nature of female flowers	Pedicellate	Sessile or pedicellate	Sessile	Sessile or pedicellate

Key to the taxa

- 1a. Large trees above 15 m tall, peduncle up to 3 mm long, syconium not globose in shape, male flowers either near the ostiule or dispersed 2.
- 1b. Small trees up to 15 m height, peduncle 4 mm long, syconium globose in shape, male flowers abundant around the ostiule and slightly dispersed ***F. virens* var. *dispersa***
- 2a. Petiole above 5 cm long, lateral veins 8-12 pairs, size of the syconium above 1 cm when dry, ostiule 2-4 mm across, male flowers near ostiule or dispersed 3.
- 2b. Petiole below 3 cm long, lateral veins 7-11 pairs, size of syconium below 1 cm when dry, ostiule 2-3 mm across, male flowers dispersed only ***F. prolixa***

- 3a. Stipule glabrous/puberulous, petiole below 7 cm long, indumentum of basal bracts glabrous/minutely puberulous, syconium subglobose in shape, male flowers positioned near ostiole or dispersed, female flowers sessile or pedicellate ***F. virens* var. *virens***
- 3b. Stipule tomentose, petiole above 7 cm long, indumentum of basal bracts glabrous, syconium obovoid in shape, male flowers positioned near ostiole only, female flowers sessile ***F. virens* var. *matthewii***

Taxa examined: ***F. virens* var. *dispersa***. Papua New Guinea. West Nakanai, Rapuri village near Cape Hoskins, 05-08-1954, A. Floyd NGF 6457 (Holotype L; Isotype K). ***F. virens* var. *matthewii***: Tamil Nadu, (Madras): Dindigul, Pachalur, 01-11-1987, Matthew RHT 50937 (L); Kerala, Wayanad, Thirunelly, 27-10-2020, Sreehari S Nair & Ebin P J 12121 (MESA). ***F. virens* Aiton**: Tamil Nadu, Coimbatore, Girimalami, 18-03-1931, K. Cherian Jacob, 421(MH); Kerala, Kollam, Vilakkumaram, Shenduruny WLS, 09-12-1993, Sasidharan, 10687; Idukki, 1101 m, 16-05-1994, N. Sasidharan & Jomy Augustine, 13740 (KFRI); Thiruvananthapuram, Peringammala, 19-06-1984, N. Mohanan, 174 (TBGT); Wayanad, Vythiri, 900 m, 15-05-2000, Rathesh Narayanan, 2547 (CALI). ***F. prolixa***: Bei Yaouhe, New Caledonia, 21-09-1902, R. Schlechter 14730 (Isotype); Guam, Pacific, 30-12-1953, Fosberg 35333; Nauru, Pacific, 11/15/1990, Mackee 45237 (L).

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 Final approval: S. S. Nair, K. H. A. Bachan, P. J. Ebin

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