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Taxonomic notes on the identity of *Rungia latior* var. *anamalayana* (Acanthaceae) from Western Ghats, India

Nazarudeen A*, G Rajkumar, Rohith Mathew Mohan & R Prakashkumar

Jawaharlal Nehru Tropical Botanic Garden and Research Institute, Palode, Thiruvananthapuram 695 562, Kerala, India

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Abstract

Rungia latior Nees var. *anamalayana* Chandrab. & V. Chandras., examined as part of the revisionary studies on the Acanthaceae of Western Ghats, have shown some taxonomic ambiguity. As the original authors rightly pointed out, the variety 'does not fit within the circumscription of the typical species'. Based on our recent collections, we also felt that the varietal status is superfluous as the same has got some merits to be recognized as a distinct species. As such the status of the variety has been reassessed; elevated to the specific rank and a new combination has been set, conserving the varietal name as the specific epithet. Accordingly, the species is renamed as *Rungia anamalayana* (Chandrab. & V. Chandras.) A. Nazarudeen & G. Rajkumar *comb. et stat. nov.* The distinctive features and alliance of the species is discussed and a full account of the species is presented with illustrations.

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*Correspondence

A Nazarudeen
✉ drnazru@gmail.com

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Introduction

Rungia Nees with about 50 species is distributed throughout the Old World tropics and subtropics (1-2). In India, the genus is represented by 15 species (3), nine are in Tamil Nadu (4) and particularly 4 species in the Anamalai Hills (5). The genus is closely allied to *Justicia* L. but differing by the septa with attached retinacula, separating from the inner wall of the capsule, and the spicate inflorescences with 2 series of bracts, one sterile and the other fertile at each node (6).

While conducting botanical explorations as part of the studies on the Acanthaceae of Western Ghats, the authors came across with two interesting specimen of *Rungia* (A. Nazarudeen & G. Rajkumar 94319 TBGT; A. Nazarudeen & G. Rajkumar 94358 TBGT) from the Anamalai hills, particularly from the Akkamalai Forests at an altitude of 1600 m (Fig. 1). Detailed examination revealed that the specimens represent *Rungia latior* Nees var. *anamalayana* Chandrab. & V. Chandras, (7) described from the same locality, but with some taxonomic ambiguity as they remarked, "it does not

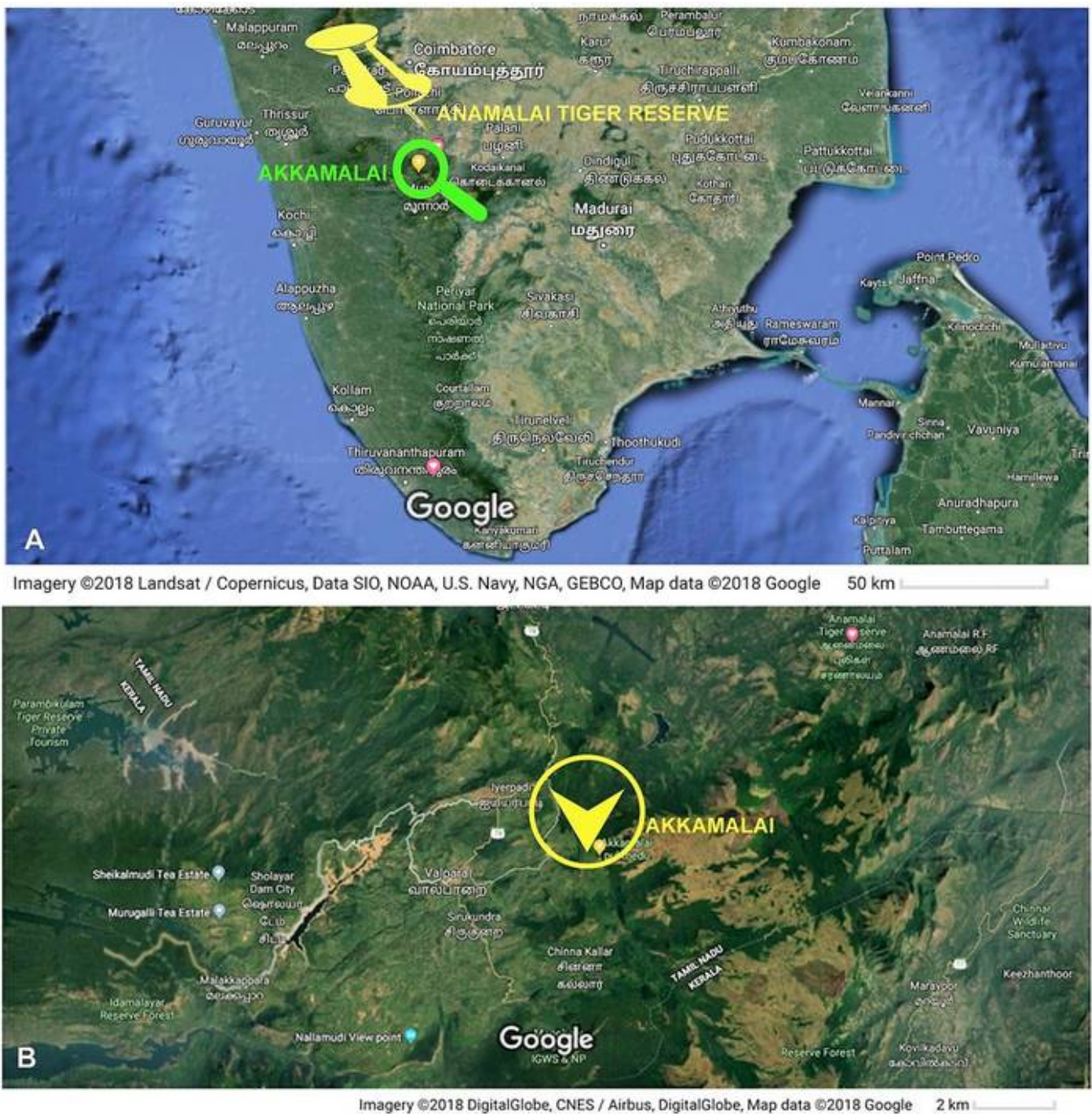


Fig. 1. Type locality of *Rungia anomalayana* A. - Southern part of India, showing Anamalai Tiger Reserve, B. - Akkamalai Forests.

fit within the circumscription of the typical species”.

Detailed taxonomic analysis of the specimens has led to conclude that the variety aptly fits within the ‘*parviflora*’ group of *Rungia* rather than ‘*laticornis*’, on account of a set of characters including the herbaceous prostrate habit, secund inflorescences, dimorphic and pectinate bracts, non-hyaline sterile bracts, emarginated or bifid upper lip of the corolla with vein endings and minutely tuberculate seeds. The authors also found that the variety, var. *anomalayana* bears some distinctive features good enough to merit its recognition as a distinct species and therefore to elevate it to specific rank. Accordingly the status of the variety has been

elevated here as a distinct species, differing from *R. laticornis* in the cuneate leaf bases, barren bracts with non-scarious, corolla with shortly bifid upper lip, apparently glabrous calyx lobes etc (Table 1). Detailed taxonomic account of the species is presented below with illustrations.

Taxonomy

Rungia anomalayana (Chandrab. & V. Chandras.) A. Nazarudeen & G. Rajkumar **comb. et stat. nov.** - Basionym: = *Rungia laticornis* Nees var. *anomalayana* Chandrab. & V. Chandras. in, J. Bombay Nat. Hist. Soc. 84(3): 722. 1987 [publ. 1988]. - *Justicia laticornis* (Nees) J.R.I. Wood subsp.

Table 1. Comparative morphology of *Rungia latior* and *R. anamalayana*

Characters	<i>Rungia latior</i>	<i>Rungia anamalayana</i>
Distribution	India (Tamil Nadu, Kerala), Sri Lanka	Endemic, Tamil Nadu (Anamalai)
Habitat	Exposed hill slopes	Evergreen forest, usually on trail sides
Altitude	700-1200 m	Only at high altitudes (above 1600 m)
Habit	Stout, erect herbs	Prostrate herbs with upright flowering branches
Leaf shape	Ovate-lanceolate	Elliptic
Leaf size	7.5-10 × 2.5-3.5 cm	5-7 × 1.5-2.5 cm
Leaf base	Rounded	Cuneate to attenuate
Leaf tip	Acute	Shortly acuminate with a blunt tip
Leaf veins	Lateral veins 6-8 pairs	Lateral veins 5-6 pairs
Spikes	ca 1.5 cm long, terminal, 3-5 together	Peduncled, terminal, ca 2 cm long
Bracts	Similar	Dissimilar
Barren & fertile bracts	Prominently and uniformly white scariously margined	Only fertile bracts scariously margined
Calyx lobes	Softly hairy	Glabrous or sparsely hairy at base
Corolla	White, ca 0.5 cm across	White with blue streaks on the lower lip, ca 1 cm across, upper lip emarginate
Upper lip	Acute	Notched/ emarginate
Filaments & connective	Glabrous	Filament puberulent, connective with a few hairs
Ovary & style	Glabrous, stigma entire	Sparsely puberulous, stigma minutely lobed
Capsule	0.4-0.5 cm long, glabrous	0.2-0.3 cm long, tomentose
Seeds	Minutely glandular - verrucose	Glabrous, minutely tuberculate

latior var. *anamalayana* (Chandrab. & V. Chandras.) J.R.I. Wood in Novon 23(3): 288. 2014.

Type: INDIA. Tamil Nadu, Coimbatore District, Akkamalai, 18 Feb. 1980, *Chandrabose* 65859 (holotype, CAL!; isotype K000911821: image!, MH!).

Herbs, basally prostrate, rooting at nodes and then erect; stem terete, pubescent along one line with downward facing appressed hairs. Leaves elliptic, 5-7×1.5-2.5 cm, base attenuate, apex acute or blunt, margin entire, lamina sparsely hairy, lateral veins 5-6 pairs, clearly visible above and projecting below; midrib and lateral veins with upward facing appressed hairs; petioles 0.5-1cm long, sometimes curved upwards, with upward facing appressed hairs. Inflorescences terminal or axillary, spicate; axis 1-4 cm long, with downward facing appressed hairs; spikes 1-3 cm long, secund, bracts heteromorphic (one side of the spikes with sterile bracts, another side with fertile bracts), parallel, pectinate; sterile lobes lanceolate, thick, green, ca 7.5×1.5 mm, inner side glabrous, sparsely hairy outside; fertile side with two types of bracts, the outer ovate-lanceolate, ca 7×2 mm, tip acute, hairy outside, glabrous inside, with narrow hyaline margins; inner bracts (bracteoles) boat-shaped, broadly ovate, ca 5×2.5 mm, margin broadly hyaline, sparsely hairy outside, glabrous inside, beaked or apiculate. Flowers: calyx deeply 5-lobed; lobes light green, equal, ca 5 mm long, ca 1

mm broad at base, glabrous inside, margin and outer side with a very few long and sparse hairs, mostly towards base, sometimes glabrous; corolla lobes white, ca 1 cm across at the broadest portion, 2-lipped; lower lip spreading, 3-lobed, middle lobe longer, pubescent outside towards tip, glabrous inside; central lobe larger; upper lip erect, emarginated or shortly bifid with vein endings; stamens 2, inserted on the corolla tube just above from the base, anthers 2-theous, thecae subequal, superposed, ca 1 mm long, ca 0.7 mm broad, the lower with a white spur at the base; filaments 4-5 mm long, puberulous at the tip; connective shortly hairy; disc cupular, ca 0.7 mm long; ovary ovoid, ca 2 mm long, glabrous or sparsely hirsute at tip; ovules 2 per locule; style sparsely short hairy throughout, ca 7 mm long; stigma 2-cleft. Capsules ovoid, ca 2-3×1-2 mm, tomentellous/ hairy towards apex, 4-seeded; retinacula hooked; septa (with attached retinacula) spreading from inner wall of mature capsules; seeds orbicular, ca 1.2 mm across, compressed, brown, glabrous, minutely tuberculate.

Flowering & fruiting: November - March

Habitat: Scattered in the trek trail sides of closed evergreen forests at an altitude above 1600 m, in association with *Hydrocotyle javanica* Thunb., *Impatiens cordata* Wight, *Hylodesmum repandum* (Vahl) H. Ohashi & R. R. Mill, *Strobilanthes*



Fig. 2. A. Field image of *Rungia anamalayana*. B. Habit in bloom, C. Flowers enlarged, D. Spike showing fertile and sterile bracts.

pulneyensis C.B. Clarke, *Barleria involucrata* Nees var. *elata* (Dalzell) C.B. Clarke, *Antistrophe serratifolia* (Bedd.) Hook.f., *Psychotria anamallayana* Bedd., *Micrococca beddomei* (Hook.f.) Prain, *Rauvolfia verticillata* (Lour.) Baill., *Milium montana* Gardner ex Hook.f. & Thomson,

Lasianthus rostratus Wight, *Salacia fruticosa* Wall. ex M.A. Lawson, *Ardisia rhomboidea* Wight etc.

Distribution: Known only from the type locality, Akkamalai hills of Anamalai Tiger Reserve, Coimbatore District, Tamil Nadu, India.

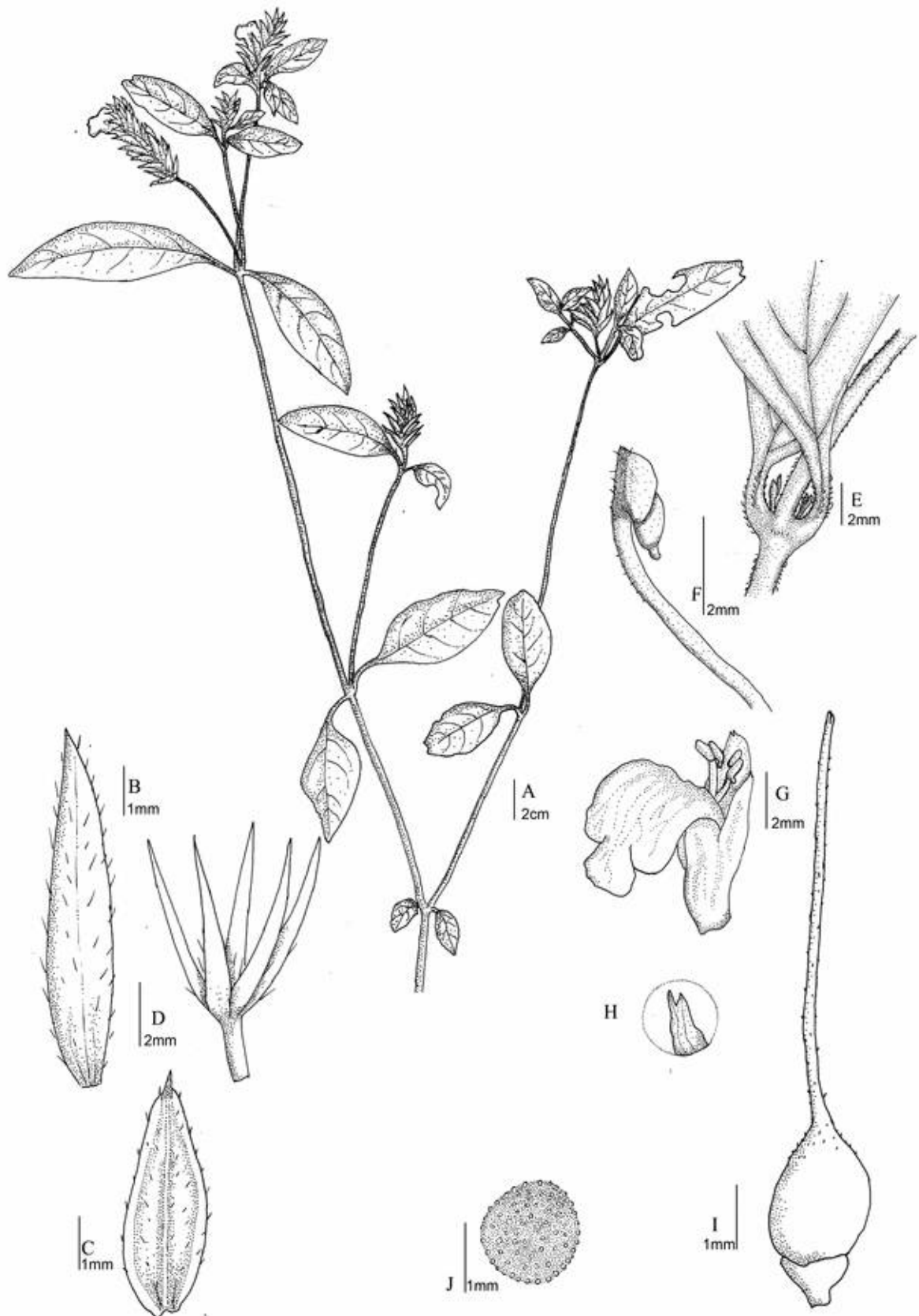


Fig. 3. *Rungia anamalayana* A. Habit, B. Sterile bract, C. Fertile bract, D. Calyx, E. Leaf base, F. Stamen, G. Corolla with stamen, H. Emarginate upper lip of corolla, I. Pistil, J. Seed.

Etymology: Specific epithet denotes the type locality, the Anamalai hills.

Specimens examined: INDIA. Tamil Nadu, Coimbatore District, Akkamalai, 29 Jan. 2019, A.

Nazarudeen & G. Rajkumar 94319 (TBGT); Akkamalai, 30 Jan. 2019, A. *Nazarudeen & G. Rajkumar* 94358 (TBGT). Fig. 2 & 3.

Conservation status & notes: The species exhibits a highly restricted and localized distribution in the type locality with severely fragmented population. Since it is known only from the type locality and there is no information on its current status, the species is listed as Data Deficient (DD) as per IUCN Red List Categories and Criteria, version 13, section 8.1(D) of IUCN (8). The species needs conservation trials as there is possible degradation of habitat due to widening and clearing of trekking trails and other probable anthropogenic disturbances as the area borders tea plantations. The authors however, have conserved the species *ex-situ* in JNTBGRI as a means of protecting them from probable depletion.

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Conflict of Interest

We hereby declare that we have no conflict of interest.

Author's contribution

We declare that we have contributed equally to the work presented in the research article.

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