

NEW TAXA AND RECORD FROM SADDLE PEAK, ANDAMAN ISLANDS

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ABSTRACT

The present paper describes 7 new taxa i.e. *Tadehagi triquetrum* ssp. *andamanicum* (Fabaceae), *Memecylon collinum* (Melastomataceae), *Diplospora andamanica* (Rubiaceae), *Vernonia andamanica* (Asteraceae), *Jasminum unifoliolatum* (Oleaceae), *Phyllanthus andamanicus* and *Trigonostemon viridissimus* var. *confertifolius* (Euphorbiaceae). A new record for India, *Hopea helferi* (Dyer) Brandis (Dipterocarpaceae) is also described and reported from Andaman Islands. Five new taxa are illustrated.

The Saddle Peak range of hills in North Andaman Island situated between 13° 0' 13° 45' N and 92° 45' - 93° 10' E has never been botanically explored so far, until November-December 1976 when the present authors undertook the first ever botanical collection trip to this range. Subsequently another exploration was undertaken in March 1977. In Andaman and Nicobar Archipelago, this is the highest peak with an altitude of 720 m above m.s.l. and exhibit a unique flora quite distinct from other areas of these islands in having stunted shrubby vegetation giving the appearance of temperate and subalpine stunted growth on mountain peaks of Himalayas. In fact, a few genera of mainly temperate and subtropical areas of Assam and Burma, i.e. *Ascocentrum*, *Coelogyne*, *Porpax* (Orchidaceae), *Memecylon*, *Osbeckia* (Melastomataceae), *Strobilanthes* (Acanthaceae), *Vernonia* (Asteraceae) and *Clematis* (Ranunculaceae) are found on this range, even though the altitude and climate do not permit calling this vegetation even as subtropical. From the several new records and

new taxa, the present paper describes 5 new species, 1 new subspecies, 1 new variety and 1 new record as additions to the Flora of India.

DIPTEROCARPACEAE

1. ***Hopea helferi*** (Dyer) Brandis in J. Linn. Soc. 31: 62, t. 2, ff. 1-2. 1895 et Indian Trees 67. 1906; Fischer in Kew Bull. 1927; 206. 1927; Symington in Gard. Bull. Str. Settle. 8: 274, t. 20. 1935. *Vatica helferi* Dyer in Hook. f. Fl. Brit. Ind. 1: 302. 1874. *Shorea helferi* (Dyer) Kurz, For. Fl. Brit. Burma 1: 119. 1877. *Hopea* sp. Parkinson, For. Fl. And. Is. 94. 1923.

Tree, ca 5 m high; young twigs glabrous. Leaves oblong-ovate to ovate-lanceolate, obtuse at base, subacute at apex, entire at margins, 6.5-14.0 cm long, 2.8-5.5 cm broad, glabrous, dark green above, pale below; midrib depressed above, raised below; lateral nerves 13-16 pairs, almost parallel and ascending; petioles 0.8-1.5 cm long, 2-3 mm thick, transversely fissured, brownish black. Panicles terminal and upper axillary, 4-10 cm long, pubescent; flowers cream coloured; pedicels up to 1 mm long, pubescent. Calyx-tube ca 1 mm long, pubescent; lobes 5, unequal, ovate,

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1-2 mm long, *ca* 1 mm broad, outer 2 pubescent on both the surfaces, inner 3 pubescent only outside. *Petals* 5, twisted, oblique, lanceolate, 5-6 mm long, *ca* 2 mm broad, partly pubescent outside. *Stamens* 15; filaments short, *ca* 0.5 mm, partly coherent to corolla, flattened at base; anthers *ca* 0.5 mm long, 2-celled; connective awned, setaceous, *ca* 1 mm long, longer than anther. *Ovary* *ca* 1 mm across, 3-loculed with 2 ovules in each cell; style short, *ca* 0.5 mm long; stigma minute, terminal. *Fruits* on *ca* 1 mm long, tomentose stalks; nut ovoid, apiculate, *ca* 4 mm long, enclosed by calyx-lobes; 3 lobes short, *ca* 3 mm long; 2 lobes enlarged, elongate-obovate to oblong-ob lanceolate, obtuse to retuse at apex, 3-4 cm long, 0.8-1.0 cm broad, brown, 7-nerved, puberulous.

NORTH ANDAMANS: Saddle Peak, 400-500 m, 1 Dec. 1976, in flower, *Balakrishnan & Nair* 4739 (PBL, CAL); Saddle Peak, 27 Mar. 1977, in fruits, *Balakrishnan* 5168 (PBL, CAL). **SOUTH ANDAMANS:** Port Mouat hill jungle, 23 Jan. 1892, *King's Collector* s.n. (CAL. Acc. Nos. 51926-30).

Distribution: So far known only from Burma, Cambodia, Thailand and Malay Peninsula, this is an addition to Flora of India. The *Hopea* described by Parkinson (l.c.) without specific name belongs to this species. He reports the occurrence of this species on high hills north of Rangat Bay in Middle Andamans.

FABACEAE

2. ***Tadehagi triquetrum*** (L.) Ohashi subsp. ***andamanicum*** Balakr. et N. G. Nair, subsp. nov.

Differt a subsp. *alato* (DC.) Ohashi, foliis confertis, brevioribus, acutis; petiolis crassioribus, brevioribus; alis discretis et acutis ad apices; paniculis longioribus; leguminibus 2-segmentatis; segmentis longioribus; Typus: *Balakrishnan & Nair* 4798 (holo. 4798 A in CAL, iso. 4798 B-D in PBL, et 4798 E in L.)

Differs from subsp. *alatum* (DC.) Ohashi in leaves being close together, shorter, acute; petioles thicker, shorter; wings free and acute at apex; panicles longer; pods 2-segmented; segments longer.

Erect shrub, 1-2 m high; branchlets sparsely puberulous. *Leaves* unifoliolate, oblong-elliptic, rounded to subcordate at base, acute to mucronulate at apex, entire at margins, 2.5-7.0 cm long, 1.0-3.5 cm broad, glabrous, dark green above, pale below, sparsely puberulous and scattered long hairy on nerves beneath; sparsely hairy along margins; lateral nerves 9-11 pairs; stipules early caducous, only scars seen; petioles 7-8 mm long, pulvinate and puberulous at apex, winged all along the length; wings oblong, acute and free at apex, 6-7 mm long, 1-2 mm broad on each side, glabrous. *Inflorescence* terminal, slender, narrowly paniculate, seemingly simple racemose, 7-18 cm long, minutely hooked-hairy; flowers in few-flowered short condensed racemes laxly arranged on main rachis; pedicels slender, angled, 4-7 mm long, minutely hooked-hairy, yellowish purple; bracts narrow lanceolate, 1.5-2.0 mm long, scarious, early caducous, bracteoles 2, subtending calyx-tube, narrow-lanceolate, acuminate, 1-2 mm long, scarious, pubescent. *Calyx* minutely hooked-hairy with a few long hairs, purplish; tube *ca* 2 mm long; lobes 4, unequal; upper lobe broadly ovate-triangular, reflexed, 1-2 mm long, 2-3 mm broad; posterior lobe narrow-lanceolate, acuminate, 2-3 mm long; lateral lobes ovate-acuminate, *ca* 2 mm long, *ca* 1 mm broad. *Corolla* reddish-purple, blue-tinged; standard petal 6-7 mm long, 8-10 mm broad, reflexed on a *ca* 2 mm long claw with a callus above the claw inside; wing petals 5-6 mm long, 2-3 mm broad with *ca* 2 mm long claw; keel petals 4-5 mm long, 2-3 mm broad with 2-3 mm long claw. *Stamens* 10, diadelphous; vexillar stamen

free with 4-5 mm long slender filiform filament; staminal tube 5-6 mm long; free part of filaments short, uniformly slender, filiform; anthers subglobose, subdorsifixed, 2-celled. Ovary *ca* 2 mm long, orange-yellow, puberulous; stalk *ca* 1 mm long, enclosed in white cupular oblique-mouthed *ca* 1 mm long disc; ovules 2; style 3-4 mm long; slightly dilated at middle, pubescent at base, glabrous above; stigma capitate with a few bristly hairs. Pods stalked, 2-seeded, jointed between the seeds, 2.8-3.5 cm long, with a long curved acicular prolongation at apex; segments 1.3-1.6 cm long, 0.9-1.0 cm broad, puberulous, finely reticulate (Fig. 1).



Fig. 1. *Tadehagi triquetrum* (L.) Ohashi subsp. *andamanicum* Balakr. & N. G. Nair: A. Habit. B. Winged petiole. C. Calyx with bracteole. D. Flower. E. Standard petal. F. Wing petals. G. Keel petals. H. Vexillar stamen. I. Staminal tube with anthers. J. Ovary. K. Pod.

NORTH ANDAMANS: Saddle Peak, 650-720 m above m. s. l., scrub forests on open hill slopes, 2 Dec. 1976, Balakrishnan &

Nair 4798 (holotype 4798 A in CAL; isotypes 4798 B-D in PBL and 4798 E in L.).

MELASTOMATACEAE

3. *Memecylon collinum* Balakr. et N. G. Nair, sp. nov.

Differt a *M. eleganti* Kurz, ramulis teretibus; petiolis brevioribus; foliis ellipticis, obovatis, retusis vel subretusis ad apices, 1-nervatis; nervis lateralibus obscuris. Typus: Balakrishnan & Nair 4764 (holo. 4764 A in CAL et iso. 4764 B-D in PBL).

Arbor parva, *ca* 4 m alta; ramuli teres, glabri. Folia ovata, elliptica vel subobovata, basi acuta, apice obtusa, retusa vel subretusa, ad margines integra, 4-7 cm longa, 1.7-3.8 cm lata, supra atrovirentia, infra pallida, in sicco luteola; costa distincta; nervi lateralis obscuri; petioli 3-5 mm longi, *ca* 2 mm crassi, glabri. Flores purpurascens suffusis rubentibus, in corymbis pedunculis, plerumque ex axillis aphyllis, interdum ex ramis lignosis veteribus; pedunculi 4-9 mm longi, glabri; pedicelli 2-3 mm longi, glabri; bracteolae 2, basales, triangulares, *ca* 1 mm longae et latae. Calyx cupulatus, *ca* 3 mm longus, 3-4 mm diam., glaber; lobi minuti, triangulares subulati. Petala 4, late ovata vel orbicularia, rotundata ad apices, *ca* 3 mm longa, *ca* 4 mm lata, glabra. Stamina 8; filamenta *ca* 4 mm longa, glabra; antherae *ca* 1.5 mm longae; connectiva appendiculata; appendices curvae, 2.0-2.5 mm longae, *ca* 1.5 mm crassae, glandibus dorsalibus excavatis ad curvamina; discus 8-costatus, glaber. Ovarium adherens et includens in calyce, uniloculare; ovula *ca* 10, placentatione centrali libera; stylus 4-5 mm longus, glaber; stigma terminalia, obscura.

Small tree, *ca* 4 m; branchlets terete, glabrous. Leaves ovate, elliptic to subobovate, acute at base, obtuse, retuse or subretuse at apex, entire at margins, 4-7 cm long, 1.7-3.8 cm wide, dark green above, pale beneath, yellowish when dry; midrib distinct; lateral nerves obscure;

petioles 3-5 mm long, *ca* 2 mm thick, glabrous. Flowers purplish with reddish tinge, in peduncled corymbs usually in leafless axils, sometimes from old woody branches; peduncles 4-9 mm long, glabrous; pedicels 2-3 mm long, glabrous; bracteoles 2, basal, triangular, *ca* 1 mm long and broad. Calyx cup-shaped, *ca* 3 mm long, 3-4 mm diam., glabrous; lobes minute, triangular, subulate. Petals 4, broadly ovate-orbicular, rounded at apex, *ca* 3 mm long, *ca* 4 mm wide, glabrous.

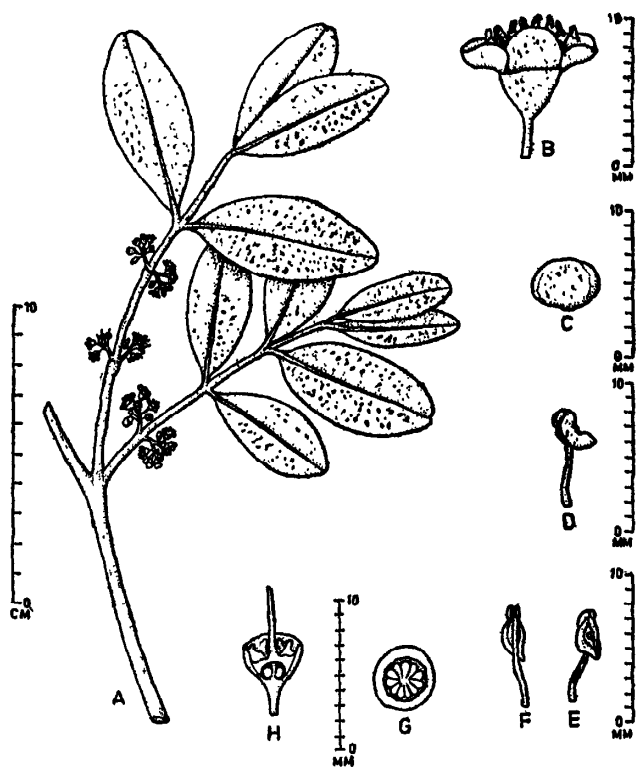


Fig. 2. *Memecylon collinum* Balakr. & N. G. Nair: A. Twig. B. Flower. C. Petal. D. Stamen, lateral view. E. Stamen, outer view. F. Stamen, inner view. G. Ovary with calyx cup, l.s. H. Ovary with ovules, t.s.

Stamens 8; filaments *ca* 4 mm long, glabrous; anthers *ca* 1.5 mm long; connective appendage curved, 2.0-2.5 mm long, *ca* 1.5 mm thick with a dorsal hollow gland at the curve; disc 8-ribbed, glabrous. *Ovary* adherent and included in calyx, 1-celled; ovules *ca* 10, on free central placenta; style simple, 4-5 mm long, glabrous; stigma terminal, obscure (Fig. 2).

NORTH ANDAMANS: Saddle Peak, 500-700 m, open scrub jungles in lateritic soils, 1 Dec. 1976, in flower, Balakrishnan & Nair 4764 (holotype 4764 A in CAL, isotypes 4764 B-D in PBL).

M. elegans Kurz is an endemic species of Andaman Islands. The present new species differs from it in branchlets being terete; petioles shorter; leaves elliptic, retuse to subretuse at apex, 1-nerved and lateral nerves being obscure.

RUBIACEAE

4. *Diplospora andamanica* Balakr. et. N. G. Nair, sp. nov.

Ex affinitate *D. kunstlerii* King & Gamble et *D. fasciculatae* Elm., ab utroque differt foliis brevioribus, tenuissimis, ellipticis, lanceolatis; nervis lateralibus 10-12 binatis; petiolis brevioribus; fructus obovoideis, clavatis. Typus: Balakrishnan & Nair 4762 (holo. 4762 A in CAL; iso. 4762 B-D in PBL et 4762 in L).

Frutex 3-4 m altus; ramuli glabri; stipulae ovatae, longi-acuminatae, 5-7 mm longae, *ca* 3 mm lae ad bases, extra pubescentes, intra sparsim hirtae vel setosae ad bases. Folia elliptica, lanceolata, basi acuta vel subdecurrentia, apice acuminata ad margines integra, 5-11 cm longa, 1.5-3.5 cm lata, coriacea, supra glabra atrovirentia, infra puberula subviridia; nervi laterales 10-12 binati, recavi versus margines; petioli 3-5 mm longi, 1.0-1.5 mm crassi, glabri. Cymae axillares, umbellatae, puberulae, 2-4 mm longae; bractae ovatae, acuminatae, *ca* 2 mm longae, puberulae; bracteolae duae ad bases pedicellorum, cohaerentes ad bases, ovatae, triangulares, pubescentes et breviter ciliolatae; pedicelli 1-3 mm longi, glabri. Calycis tubus 2-3 mm longus; lobi 4, breviter triangulares, pubescentes et breviter ciliolati. Corolla alba; tubus 2.0-2.5 mm longus, extra glaber, intra dense villosus ad faucem; lobi 4, antihelictate imbricati, orbiculares, obovati, 2.0-2.5 mm longi. Stamina

4, ad faucem corollae tubi; filamenta brevia; antherae dorsifixae, ca 2 mm longae. Ovarium biloculare, ovulis duobus pendulis omnibus loculis; discus brevis annularis, integer; stylus ca 1.5 mm longus, pubescens versus apicem; stigma bilobata, ovata, ca 2 mm longa, ca 1 mm lata, villosa. Fructus obovoideus, clavatus, 6-8 mm longus, ca 3 mm crassus, glaber, lobi calyce quattuor brevibus persistentibus ad apicem.

Shrub, 3-4 m tall; branchlets glabrous; stipules ovate, long-acuminate, 5-7 mm long, ca 3 mm broad at base, pubescent outside, hairy and bristly at base inside. Leaves elliptic-lanceolate, acute to subdecurrent at base, acuminate at apex, entire at margins, 5-11 cm long, 1.5-3.5 cm broad, coriaceous, dark green and glabrous above, pale puberulous below; lateral nerves 10-12 pairs, interarching near margins; petioles 3-5 mm long, 1.0-1.5 mm thick,

glabrous. Cymes axillary, umbellate, minutely puberulous, 2-4 mm long; bracts ovate, acuminate, ca 2 mm long, puberulous; bracteoles 2 at the base of the pedicels, coherent at base, ovate, triangular, ca 1 mm across, puberulous; pedicels 1-3 mm long, glabrous. Calyx-tube 2-3 mm long; lobes 4, short triangular, pubescent and shortly ciliate. Corolla white, glabrous outside; tube 2.0-2.5 mm long, glabrous outside, densely villous at throat; lobes 4, overlapping anticlockwise, orbicular-obovate, 2.0-2.5 mm long. Stamens 4, at the throat of corolla tube; filaments short; anthers dorsifixed, ca 2 mm long. Ovary 2-celled, with 2 pendulous ovules in each cell; disc short, annular, entire; style ca 1.5 mm long, pubescent towards the apex; stigmatic lobes 2, ovate, ca 2 mm long, ca 1 mm broad, villos. Fruits obovoid to clavate, 6-8 mm long, ca 3 mm thick, glabrous, with 4 short persistent calyx-lobes at apex (Fig. 3).

NORTH ANDAMANS: Saddle Peak, ca 600 m, 1 Dec. 1976, Balakrishnan & Nair 4762 (holotype 4762 A in CAL; isotypes 4762 B-D in PBL and 4762 E in L).

Allied to the Malaysian *D. kuntsleri* King & Gamble and the Philippine *D. fasciculata* Elm. but differs from both in leaves being thinner, elliptic-lanceolate; lateral nerves 10-12 pairs; petioles shorter; fruits obovoid, clavate.

5. ***Vernonia andamanica*** Balakr. et N. G. Nair, sp. nov.

Differt a *V. blanda* DC. foliis breviter acuminatis ad apices; bracteis involucralibus longioribus, longe ciliatis; paniculis terminalibus, paucicephalis, glabratis; pappis longioribus, usque ad 12 mm longos, dilute cinerascentibus. Typus: Balakrishnan & Nair 4768 (holo. 4768 A in CAL, iso. 4768B-D in PBL).

Frutex scandens; ramuli glabri. Folia spiratim disposita, elliptica, ovata vel obovata, basi oblique acuta, apice breviter acuminata, ad margines integra, 4.5-10.5 cm

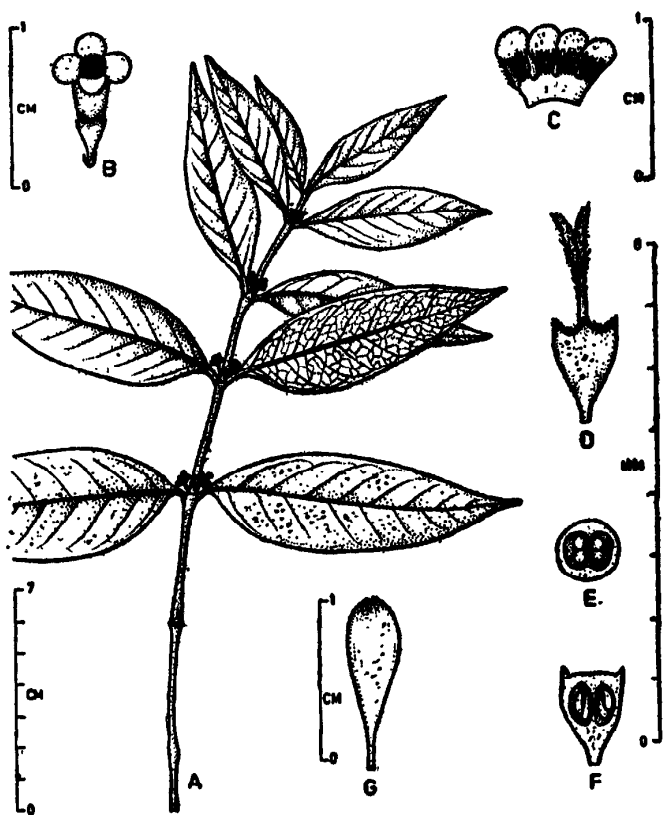


Fig. 3. *Diplospora andamanica* Balakr. & N. G. Nair: A. Twig. B. Flower. C. Corolla spread out showing villous throat and anthers. D. Calyx with ovary and style. E. T.S. of ovary. F. L.S. of ovary with pendulous ovules. G. Fruit.

longa, 1.5-5.5 cm lata, glabra, supra laevigata viridia, infra pallida; nervi laterales 5-7 binati, recavi ex marginibus; petioli 3-8 mm longi, 1-2 mm crassi, glabri. *Paniculae* terminales, breves, paucicephalae; pedunculi principales 2-3 cm longi, glabri vel parce puberuli. *Capitula* subsessilia, multiflosculis; pedunculi *ca* 1 cm longi, glabri vel parce puberuli; bractae involucrales multae; bractae exteriores ovatae, 1.5-2.5 mm longae, ciliatae; bractae interiores ovatae, oblongae vel lanceolatae, 8-9 mm longae, 2-3 mm latae, ciliatae; receptacula glabra. *Corolla-tubus* 6-7 mm longus, glaber; lobi 5, *ca* 3 mm longi. *Stamina* 5, *ca* 4 mm longa, basi sagittata, apice acuta; filamenta *ca* 2.5 mm longa. *Stylus* 7-8 mm longus; rami stigmatici *ca* 3 mm longi, curvi. *Achenia* *ca* 4 mm longa, 1.0-1.5 mm crassa, obtuse 10-costata, tenuiter pubescentia; pappi numerosi, biseriales pubescentes, dilute cinerascens; pappi exteriores 3-4 mm longi; pappi interiores 11-12 mm longi.

Scandent shrubs, branchlets glabrous. *Leaves* spirally arranged, elliptic, ovate or obovate, obliquely acute at base, obtusely acute or shortly acuminate at apex, entire at margins, 4.5-10.5 cm long, 1.5-5.5 cm wide, glabrous, glossy green above, pale beneath; lateral nerves 5-7 pairs, interarching at margins; petiole 3-8 mm long, 1-2 mm thick, glabrous. *Panicles* terminal, short, few-headed; main peduncle 2-3 cm long, glabrous or sparsely puberulous; heads subsessile, with many florets; stalk *ca* 1 cm long, glabrous or sparsely puberulous; involucre bracts many; outer bracts ovate, 1.5-2.5 mm long, ciliate; inner bracts ovate, oblong or lanceolate, 8-9 mm long, 2-3 mm wide, ciliate; receptacle glabrous. *Corolla tube* 6-7 mm long, glabrous; lobes 5, *ca* 3 mm long. *Stamens* 5, *ca* 4 mm long, sagittate at base, acute at apex; filaments *ca* 2.5 mm long. *Style* 7-8 mm long; stigmatic branches *ca* 3 mm long, curved. *Achenes* *ca* 4 mm long, 1.0-1.5 mm thick, obtuse, 10-ribbed, thinly

pubescent; pappus hairs pale greyish, numerous, in 2 rows, pubescent; outer pappus 3-4 mm long; inner pappus 11-12 mm long.

NORTH ANDAMANS: Saddle Peak, 500-700 m, open scrub jungles, 1 Dec. 1976, *Balakrishnan & Nair* 4768 (holotype 4768 in CAL, isotypes 4768 B-D in PBL).

V. blanda DC. is a Burmese species and this new species differs from it in leaves being shortly acuminate; involucre bracts longer, ciliate; panicles terminal, composed of fewer heads, glabrous; pappus hairs longer, up to 12 mm long and greyish.

OLEACEAE

6. *Jasminum unifoliolatum* Balakr. et N. G. Nair, sp. nov.

Ab affine *J. caudato* Lindl. a qua tamen differt foliis plerumque unifoliolatis; foliolis latioribus, crassioribus, penninerviis; paniculis dense albopubescentibus; cymis laxifloribus; corollis brevioribus. Typus: *Balakrishnan & Nair* 4766 (holo. 4766 A in CAL; iso. 4766 B-D in PBL et 4766 E in L).

Frutex scandens; rami et ramuli glabri; nodi juvenes minute puberuli. *Folia* plerumque simplices, unifoliolata, raro uno foliolato laterali parvo, ovata, basi truncata vel subacuta, apice acuminata, ad margines integra, 7-11 cm longa, 4-6 cm lata, crasse coriacea, glabra, supra prasina, infra glauca, nervi laterales 5-7 binati, ascendentes et recavi ex marginibus; petioli articulati, geniculati, 2.0-2.5 cm longi, 1-2 cm crassi, glabri. *Cymae* paniculatae, terminales et summe axillaribus, 12-17 cm longae, confertum pubescentes; pili breves, albidii; bractae lineari-lanceolatae, 1-2 mm longae, ad margines confertim albo-pubescentes. *Flores* heterostylares, albi, sessiles vel subsessiles; pedicelli usque ad 2 mm longos, dense pubescentes pilis mollibus brevibus. *Calycis tubus* *ca* 2 mm longus, pubescentes; lobi 4-5, ovati, triangulares, *ca* 1 mm longi, dense pubescentes pilis mollibus brevibus ad margines et intos. *Corolla* hypocrateriformis, alba, glabra, tubo 1.6-2.0 cm longi, 1-2 mm

diam., lobis 4-5, ovatis triangularibus, apice mucronatis, 5-6 mm longis, 3-4 mm latis. *Stamina* 2, inclusa in floribus longistylaribus affixis ad supracentrales et in floribus brevistylaribus affixis ad infracentrales; filamenta 1.5-2.0 mm longa, glabra; anthera 3.0-3.5 mm longa, ca 1 mm lata, dehiscentia longitudinalia; connectiva breviter producta et triangularia. *Ovarium* inclusum in calyce tubo, glabrum, 2-loculatum; locus biovulatus, interdum uniovulatus; stylus filiformis; stylus longissimus, ca 2 cm longus; stylus brevissimus, ca 1 mm longus; stigma bilobatum, stylo crassiora, ca 1.5 mm longum. *Fructus* ellipsoideus, oblongus, 1.3-1.5 cm longus, 7-9 mm crassus.

Scandent shrubs; branchlets glabrous; young nodes minutely puberulous. *Leaves* opposite, usually simple, unifoliate, very rarely with one lateral leaflet, ovate, truncate to subacute at base, acuminate at apex, entire at margins, 7-11 cm long, 4-6 cm wide, thickly coriaceous, glabrous, dark green above, glaucous green beneath; lateral nerves 5-7 pairs, ascending and interarching away from margins; petioles articulate, geniculate, 2.0-2.5 cm long, 1-2 mm thick, glabrous. *Cymes* paniculate, terminal and in upper leaf axils, 12-17 cm long, densely soft short white hairy; bracts linear-lanceolate, 1-2 mm long, densely white hairy at margins. *Flowers* heterostylous, white, sessile or subsessile; pedicels up to 2 mm long, densely pubescent with soft short white hairs. *Calyx-tube* ca 2 mm long, pubescent; lobes 4-5, ovate-triangular, ca 1 mm long, densely short white hairy at margins and inside. *Corolla* funnel-shaped, white, glabrous, with a tube of 1.6-2.0 cm long, 1-2 mm diam.; lobes 5, imbricate, ovate, mucronate at apex, 5-6 mm long, 3-4 mm broad. *Stamens* 2, included; in long-styled flowers affixed above the middle of corolla tube; in short-styled flowers affixed below the middle of corolla tube; filaments 1.5-2.0 mm long, glabrous; anthers 3.0-3.5 mm

long, ca 1 mm broad, dehiscent longitudinally; connective shortly produced and triangular. *Ovary* enclosed inside the calyx-tube, glabrous, 2-loculed; locules 2-ovuled, sometimes 1-ovuled; style filiform, longer ones up to 2 mm long, shorter ones ca 1 mm long; stigma bilobed, thicker than style, ca 1.5 mm long. *Fruit* carpels ellipsoid-oblong, 1.2-1.5 cm long, 7-9 mm thick (Fig. 4).

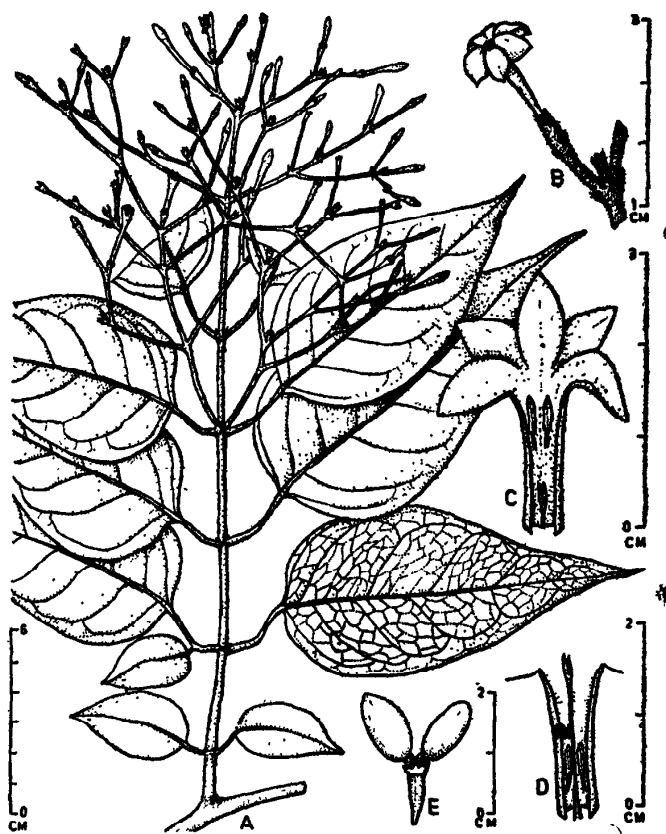


Fig. 4. *Jasminum unifoliatum* Balakr. & N. G. Nair: A. Twig. B. Flower. C. Corolla split open, showing position of anthers and style in short-styled flowers. D. Corolla tube, showing position of anthers and style in long-styled flowers. E. Fruit with 2 free carpels.

NORTH ANDAMANS: Saddle Peak, 400-700 m, scrub forests, on red lateritic soil, 1 Dec. 1976, in flower, Balakrishnan & Nair 4766 (holotype 4766 A in CAL; isotypes 4766 B-D in PBL; isotype 4766 E in L); *ibid.* 27 Mar. 1977, in fruits, Balakrishnan 5160 (Paratypes in PBL, CAL, L).

This species differs from *J. caudatum* Lindl. in leaves being mostly unifoliate,

broad, thickly coriaceous, penninerved; panicles densely short white hairy; cymes lax-flowered; corolla tube and lobes shorter.

EUPHORBIACEAE

7. *Phyllanthus andamanicus* Balakr. et N. G. Nair, sp. nov.

Differt a *P. columnari* Muell.-Arg. frutice parviore; ramulis glabris; foliis latioribus, ovatis, obtusis vel subretusis ad apices, glabris, coriaceis, distincte nervatis; petiolis glabris; pseudorecemis brevioribus; pedicellis et perianthis glabris; discis florum femineis brevissimis, annularibus, crenatis; seminibus laevibus. Typus: *Balakrishnan & Nair* 4765 (holo. 4765 A in CAL, iso. 4765 B-D in PBL et 4765 E in L).

Frutex ca 3 m altus; ramuli glabri: stipulae lineari-lanceolatae, latiores ad bases, persistentes, 2.0-2.5 mm longae, glabrae; cataphylla ovati-triangularia, lignosa, ca 1 mm longa. *Folia* ovata, basi rotundata, apice obtusa vel subretusa, ad margines integra, 1.0-3.5 cm longa, 0.7-2.6 cm lata, coriacea, glabra; nervi laterales 7-9 binati, distincti, ascendentes et arcuati versus margines; petioli 1-2 mm longi, glabri. *Flores* axillares fasciculati versus apices ramulos; pseudoracemosi, efoliati; bracteae, multae, imbricatae, subulatae, laciniatae ad margines, ca 1 mm longae; *flores* ♂ positi versus apices pseudoracemos; bracteae oblique-ovatae, sublanceolatae, ca 1 mm longae; pedicelli ca 2 mm longi, ca 0.5 mm crassi, glabri; tepala 6, biseriata, ovata, ca 2 mm longa, ca 1 mm lata, glabra, luteola; discus 6-lobatus, brevis, truncatus, albus, glaber; stamina 3; filamenta omnino connata; columna 1.0-1.5 mm longa, glabra; antherae biloculares, ca 1 mm longae, longitudinaliter dehiscentes; *flores* ♀ positi versus bases pseudoracemos et axillas folia supernos; pedicelli ca 3 mm longi, ca 1.5 mm crassi, 3-porcati versus apices, glabri; tepala 6, biseriata, late ovata, 2.0-2.5 mm longa, ca 2 mm lata, glabra; discus minutus annularis, crenatus ad apicem.

Ovarium sessile, 1.0-1.5 mm longum, 2.0-2.5 mm crassum, glabrum, 3-loculare; loculi biovulati; styli 3, connati usque ad dimidia longitudines, ca 3 mm longi, omnis bifidus ad apicem; lobi ca 1 mm longa; stigma obscura. *Capsula* depresso-globosa, 3-lobata, 4-5 mm alta, 7-9 mm lata, tepalis et stylis persistentibus; semina 6, subreniformia, subtrigona, ca 4 mm longa, ca 3 mm crassa, laevia, brunnea.

Shrub, ca 3 m tall; branchlets glabrous; stipules linear-lanceolate, broad at base, persistent, 2.0-2.5 mm long, glabrous, cataphylls ovate-triangular, woody, ca 2 mm long. *Leaves* alternate, ovate, rounded at base, obtuse to subretuse at apex, entire at margins, 1.0-3.5 cm long, 0.7-2.6 cm broad, coriaceous, glabrous; lateral nerves 7-9 pairs, distinct, ascending and looping towards margins; petioles 1-2 mm long, glabrous. *Flowers* in axillary fascicles, forming leafless pseudoracemes towards tips of branchlets; bracts many, imbricate, subulate, laciniate at margins, ca 1 mm long; *flowers* ♂ arranged mainly towards upper portion of pseudoracemes; bracts oblique-ovate, sublanceolate, ca 1 mm long; pedicels ca 2 mm long, thin, glabrous; tepals 6, in two rows, ovate, ca 2 mm long, ca 1 mm broad, glabrous; stamens 3; filaments entirely connate; column 1.0-1.5 mm long, glabrous; anthers 2-celled, ca 1 mm long, longitudinally dehiscent; *flowers* ♀ arranged mainly towards the basal parts of pseudoracemes and upper leaf axils; pedicels ca 3 mm long, ca 1.5 mm thick, 3-ridged towards the apex, glabrous; tepals in two rows, broadly ovate, 2.0-2.5 mm long, ca 2 mm broad, glabrous; disc minute, annular, crenate at apex; ovary sessile, 1.0-1.5 mm long, 2.0-2.5 mm thick, glabrous, 3-loculed; each locule 2-ovuled; styles 3, united for half the length; stigma obscure. *Capsule* depressed-globose, 3-lobed, 4-5 mm high, 7-9 mm wide with persistent tepals and style; seeds 6, subreniform, subtrigono-

us *ca* 4 mm long, *ca* 3 mm thick, smooth, brown (Fig. 5).

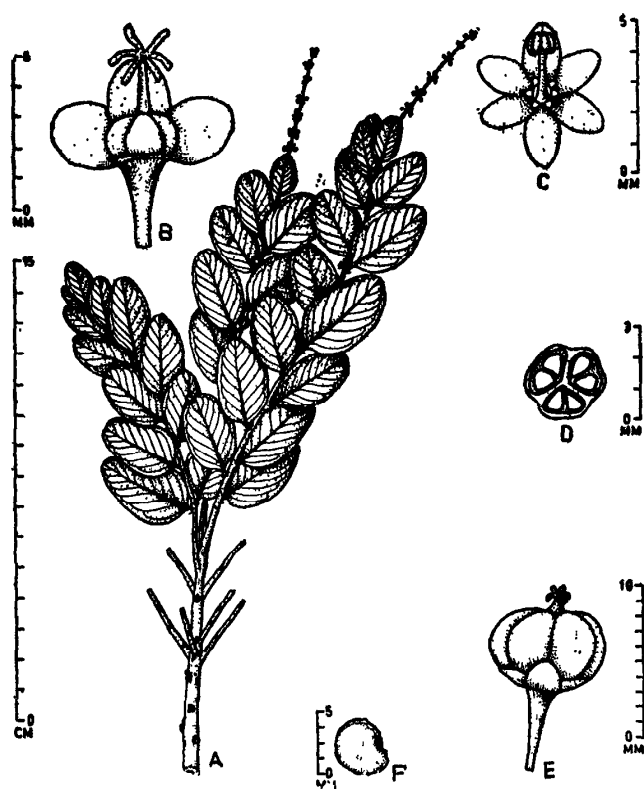


Fig. 5. *Phyllanthus andamanicus* Balakr. & N. G. Nair: A. Twig. B. Female flower, showing ovary, style and stigma. C. Male flower, showing staminal column and anthers. D. T.S. of ovary. E. Fruit. F. Seed, side view.

NORTH ANDAMANS: Saddle Peak, *ca* 550 m, 1 Dec. 1976, Balakrishnan & Nair 4765 (holotype 4765 A in CAL, isotypes 4765 B-D in PBL and 4765 in L).

Restricted to Saddle Peak area of N. Andamans at altitudes above 500 m up to the peak at 720 m, in sunny localities and associated with bushes of bamboo, *Memecylon*, *Hopea*, *Symplocos* and *Psychotria*. The soil is red lateritic and more or less dry.

This species falls under the section *Paraphyllanthus* and approaches near to *P. columnaris* Muell.-Arg. but differs in being a shrub; branchlets glabrous; leaves shorter, ovate, obtuse to subretuse at apex, glabrous, coriaceous, distinctly nerved; petioles glabrous; pseudoracemes shorter; pedicels and perianth glabrous; disc of female flowers very short, annular, crenate and seeds smooth. *P. columnaris* is distributed

in Thailand, Burma, N. Malaya and Middle & South Andamans.

EUPHORBIACEAE

8. *Trigonostemon viridissimus* (Kurz) Airy Shaw var. *confertifolius* Balakr. et N. G. Nair, var. nov.

Differt a var. *viridissimo*, foliis confertis, brevioribus, acutis; petiolis brevioribus; inflorescentiis erectis, paucifloribus. Typus: Balakrishnan & Nair 4773 (holo. 4773 A in CAL, iso. 4773 B-D in PBL et 4773 E in L).

Differs from var. *viridissimus* in closely arranged shorter acute leaves, shorter petioles and very few-flowered erect inflorescences.

Shrub *ca* 1 m; branches glabrous. Leaves ovate, obtuse at base, acute at apex, entire at margins, 2.5-6.5 cm long, 1.3-3.0 cm broad, glossy green, glabrous above, scattered hairy below, especially on nerves; lateral nerves 5-6 pairs, trinerved at base; petioles 2-6 mm long, *ca* 1 mm thick, sparsely pubescent. Racemes very short, axillary, 0.5-2.0 cm long, scattered hairy; bracts minute, ovate, glabrous to hairy; flowers yellow. Male flowers: Pedicels 4-5 mm long, filiform, glabrous; sepals 5, ovate, *ca* 2 mm long, *ca* 1 mm broad, sparsely hairy; petals obovate, *ca* 4 mm long, *ca* 3 mm broad; disc cupular, 5-angled, yellow, glabrous; stamens 3, at the tip of shortly 3-branched, *ca* 1 mm long staminal column; anthers sessile, *ca* 1 mm long. Female flowers: Pedicels 1.0-1.5 cm long, thickened upwards, sparsely hairy; sepals 5, ovate, *ca* 2 mm long, *ca* 1 mm broad, hairy outside; petals 5, obovate, 5-7 mm long, 3-4 mm broad; disc cupular, irregularly 5-angled, glabrous; ovary globose, conical, *ca* 2 mm long, *ca* 1.5 mm thick, 3-loculed; locules 1-ovuled; styles 3, almost united at base, *ca* 2 mm long; stigma obscurely 2-lobed, subglobose.

NORTH ANDAMANS: Saddle Peak, 500-700 m, open scrub forests, 1 Dec. 1976, Balakrishnan & Nair 4773 (holotype 4773 A in CAL, isotypes 4773 B-D in PBL and 4773 E in L).