

A new species of *Drypetes* (Putranjivaceae/Euphorbiaceae s.l.) from West Bengal, India

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Abstract

A new species, *Drypetes kalamii*, collected from the subtropical forests of two different Protected Areas, Buxa National Park and Jaldapara National Park in the state of West Bengal, India, is described and illustrated. This new species closely resembles *Drypetes ellisii*, but differs in being small shrub (female plants) or scrambling shrub (male plants) with corrugated branches and puberulous branchlets, longer petioles, laminae abruptly acuminate with pointed apices, slender and puberulent fruiting pedicels with bracts and bracteoles and smaller, ovoid-globose drupes.

Key words: *Drypetes kalamii*, Putranjiveae

Introduction

The genus *Drypetes* Vahl (1807: 49) comprises *c.* 220 species, distributed in the Old and New World tropical and subtropical regions (Levin 2013). However, the majority of these species occur in the Old World tropical regions. In India, the genus is represented by *c.* 20 species of dioecious trees and shrubs (Chakrabarty *et al.* 1997, Chakrabarty & Balakrishnan 2012). During the course of botanical inventories carried out in the Buxa National Park and the Jaldapara National Park situated in West Bengal, a few specimens of *Drypetes* were collected from the wet shaded localities in subtropical moist semievergreen forests. Critical examination of the specimens and scrutiny of pertinent literature revealed that the species is hitherto undescribed. Hence, it is described as a new species namely *Drypetes kalamii* along with illustration and photographs.

Drypetes kalamii G. Krishna, Karthig., Arisdason *et* Chakrab., *sp. nov.* **Figs. 1,2**

Diagnosis:—The new species most closely resembles *Drypetes ellisii* S.P. Mathew & Chakrab. (1990: 639) but differs in being small shrub (female plants) or scrambling shrub (male plants) with corrugated branches and puberulous branchlets, longer petioles, laminae abruptly acuminate with pointed apices, fruiting pedicels slender and puberulent with bracts and bracteoles and smaller, ovoid-globose drupes in fascicles of 3–5.

Type:—INDIA. West Bengal: Jalpaiguri district, Chilapatha, near Nalraja Ghar, 26°34'07.5" N, 89°22'43.5" E, 27 September 2012, K. Karthigeyan 59100 (holotype, CAL!; isotype, ASSAM!).

Dioecious, small shrubs, erect, to 1 m high (female plant) or scrambling shrubs (male plant); bark greenish; branches spreading, terete, 1–4 mm in diam., corrugated, minutely scattered tawny-pubescent. Leaves alternate, stipulate; stipules deltoid, *c.* 0.5 mm, puberulent; petioles 1–1.8 cm long, semiterete, 1–1.5 mm in diam., geniculate, pulvinate at apex, puberulent; laminae oblong to oblong-elliptic, 8.5–25 × 3.5–8.5 cm, base oblique and acute or sometimes rounded, margins entire, sometimes undulate, apex abruptly acuminate with pointed acumen (5–20 mm long), thin-coriaceous, glabrous, greenish brown when dry; midrib flattened above and raised beneath; lateral veins 6–10 pairs, faint above and prominent beneath, forming loops near margins, veinlets inconspicuous above and prominent and finely reticulate beneath. Inflorescences fascicles, usually in the axils of fallen leaves; the staminate 7–50-flowered; the pistillate flowers not seen. Male flowers: *c.* 10 mm long, greenish when immature, turning pale yellow at maturity;

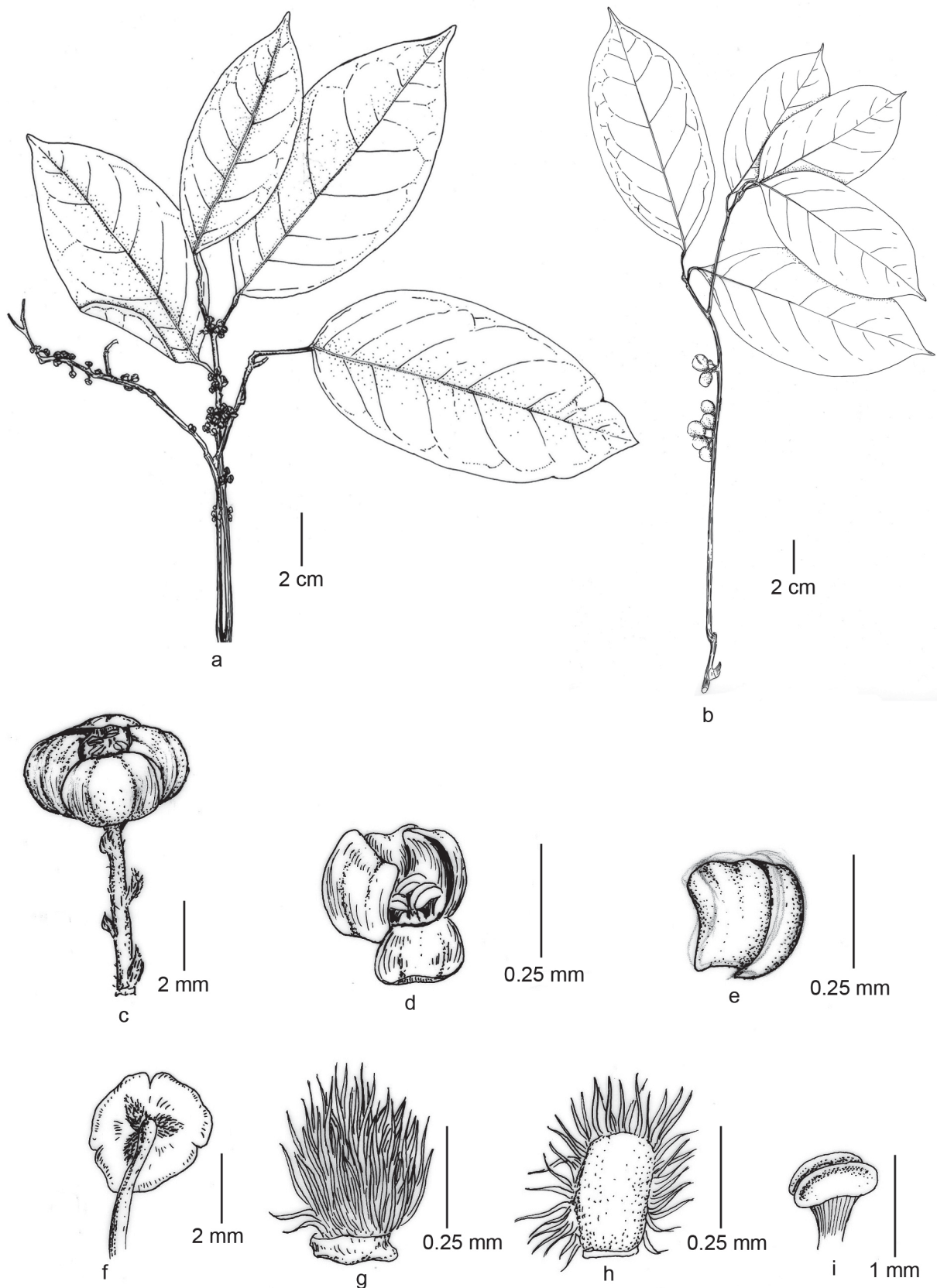


FIGURE 1. *Drypetes kalamii* G. Krishna, Karthig., Arisdason *et* Chakrab.: **a.** Flowering-twig (male); **b.** Fruiting-twig; **c.** Male flower; **d.** Sepals with stamens; **e.** Sepal (male flower); **f.** Disk with bracteoles; **g, h.** Bract (abaxial and adaxial sides); **i.** Stamen [illustration drawn from *Gopal Krishna* 47273 (male plant) and *K. Karthigeyan* 59100 (female plant) by D.K. Sah].

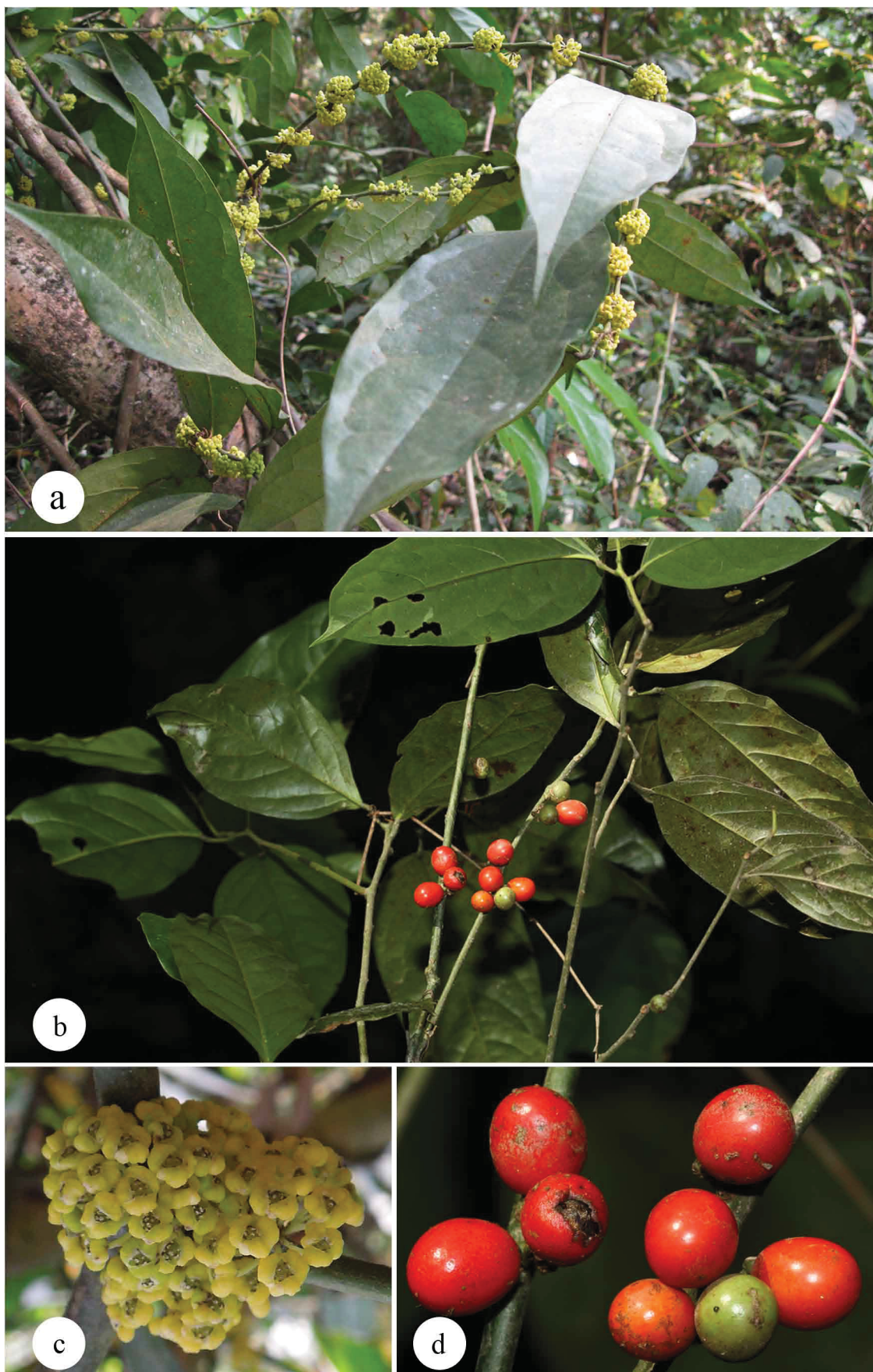


FIGURE 2. *Drypetes kalamii* G. Krishna, Karthig., Arisdason *et* Chakrab.: a, b. Habit: **a.** Male plant; **b.** Female plant; **c.** Male inflorescence; **d.** Fruits (photos: a, c. G. Krishna; b, d. K. Karthigeyan).

pedicels filiform, *c.* 5 mm long, densely strigose; bracts ovate, *c.* 0.5 mm, slightly concave, margins strigose-ciliate, densely strigose outside, glabrous inside; bracteoles smaller than bracts, ovate, surfaces similar to bracts. Sepals 4(or 5), unequal, strongly imbricate, broadly ovate-orbicular, 1.5–2 × 1–1.5 mm, concave, apex obtuse, glabrous; stamens 10(–12); filaments distinct, *c.* 0.5 mm long, thickened, glabrous; anthers *c.* 0.4 × 0.3 mm, glabrous; disk folded, lobed, glabrous; pistillode absent. Female flowers not seen. Drupes 3–5 per fascicle, ovoid-globose, 8–10 mm in diam., 1-locular, glabrous, green, turning orange-red to red when ripe; bracts and bracteoles deltoid, *c.* 0.25 mm, puberulent; pedicels 5–6 mm long, sparsely puberulent. Seed 1, subglobose, smooth.

Flowering:—March–April(–May?); **Fruiting:**—June–September.

Habitat:—Wet shaded localities in subtropical moist semievergreen forests, at 50–100 m elevation; usually in association with *Psychotria calocarpa* Kurz, *Ixora longibracteata* Bremekamp, *Cleidion javanicum* Blume and *Elatostemma repens* (Loureiro) Hallier f.

Distribution:—Known only from Buxa National Park and Jaldapara National Park in West Bengal, India. (Map).

Paratypes:—INDIA. West Bengal: Alipurduar district, Buxa National Park, Jainty Forest Range, 26°37'55.86" N, 089°35'05.82" E, 5 March 2011, *Gopal Krishna 47273* (CAL!, ARUN!); Rajabhatkhawa Forest Range, 26°39'11.99" N, 089°37'25.50" E, 5 April 2012, *Gopal Krishna 56037* (CAL!); Jalpaiguri district, Chilapatha, 26°35'13.5" N, 089°22'18.3" E, 2 March 2013, *K. Karthigeyan 59226* (CAL!); Chilapatha, 26°38'45.7" N, 089°21'54.5" E, 5 June 2013, *K. Karthigeyan 59370* (CAL!).

Etymology:—The specific epithet honours Dr. Avul Pakir Jainulabdeen Abdul Kalam (Dr. A.P.J. Abdul Kalam), the 11th President of Republic of India, professor and aerospace scientist, for being an inspiration to the entire scientific community, especially the students and young researchers.

Conservation Status:—During the study male plants (30–40 individuals) were recorded from two localities (Jayanti and Rajabhatkhawa Forest Ranges) in the Buxa National Park, and a few male and around 20 female plants are located in one locality (Chilapatha Forest Range) in Jaldapara National Park. It is provisionally assessed here as “Critically Endangered” following the IUCN Red List Categories and Criteria version 3.1 (2012). Grazing and forest fires are two plausible threats to this species.

Note:—This new species is unique among the Indian *Drypetes* in having small shrubby/scrambling life-form and having prominent bracts and bracteoles. This species also resembles *D. porteri* Pax & Hoffmann (1922: 268), but the latter differs primarily in its arborescent habit, much smaller leaves, shorter petioles that are neither geniculate nor pulvinate, and male flowers with 24 stamens and sepals without being inwardly curved. The characters that distinguish the new species from its closely similar species are provided in Table 1.

TABLE 1. Comparison/similarity and differentiation of characters of *D. kalamii*, *sp. nov.* with its two most similar species, *D. ellisii* and *D. porteri*.

Characters	<i>Drypetes kalamii</i>	<i>Drypetes ellisii</i>	<i>Drypetes porteri</i>
Habit	Small shrubs, sometimes scrambling (male plants), to 1 m high	Trees	Shrubs or trees
Branches and branchlets	Corrugated, puberulous	Not corrugated, glabrous	Not corrugated, glabrous
Petioles	10–18 mm long, pulvinate at apex, geniculate, puberulent	9–11 mm long, pulvinate at apex, mostly geniculate, glabrous	3–8 mm long, neither pulvinate at apex nor geniculate, glabrous
Laminae	Apex abruptly acuminate with a pointed acumen, thin-coriaceous,	Apex blunt-acuminate, thick-coriaceous	Apex blunt-acuminate, thick-coriaceous
Staminate flowers	Pedicels strigose; stamens 10(–12)	Flowers not seen	Pedicels puberulent; stamens <i>c.</i> 24
Bracts and bracteoles	Present	Absent	Not known (absent?)
Fruits	Drupes 3–5 per fascicle, green turning orange-red to red when ripe, ovoid-globose, 8–10 mm in diam.; pedicels slender, 5–6 mm long, sparsely puberulent	Drupes 1 or 2 per fascicle, orange-red when ripe, subglobose to obovoid, 12–13 mm in diam.; pedicels thick, 5–7 mm long, glabrous or with few hairs	Not seen



MAP. Distribution of *Drypetes kalamii* G. Krishna, Karthig., Arisdason *et* Chakrab.

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References

- Chakrabarty, T. & Balakrishnan, N.P. (2012) *Drypeteae* (Griseb.) Hurus. In: Balakrishnan, N.P., Chakrabarty, T., Sanjappa, M., Lakshminarasimhan, P. & Singh, P. (Eds.) *Flora of India*. Vol. 23. Botanical Survey of India, Kolkata, pp. 391–405.
- Chakrabarty, T., Gangopadhyay, M. & Balakrishnan, N.P. (1997) The genus *Drypetes* (Euphorbiaceae) in the Indian subcontinent. *Journal of Economic and Taxonomic Botany* 21 (2): 251–280.
- IUCN (2012) *IUCN Red List Categories and Criteria, version 3.1. ed. 2*. IUCN Red List Unit, Gland.
- Levin, G.A. (2013) A synopsis of the New World species of *Drypetes* section *Drypetes* (Putranjivaceae) with asymmetrical fruits, including description of a new species. *PhytoKeys* 29: 75–87.
<https://doi.org/10.3897/phytokeys.29.6004>
- Mathew, S.P. & Chakrabarty, T. (1990) A new *Drypetes* Vahl (Euphorbiaceae) from South Andaman Island. *Journal of Economic and Taxonomic Botany* 14 (3): 623–625.
- Pax, F. & Hoffmann, K. (1922) Euphorbiaceae. In: Engler, H.G.A. (Ed.) *Das Pflanzenreich. Heft 81*. Wilhelm Engelmann, Berlin. pp. 1–349.
- Vahl, M. (1807) *Eclogae Americanae, seu, Descriptiones plantarum praesertim Americae meridionalis, nondum cognitarum*. Impensis Auctoris, Havniae, 49 pp.