



Original Research Article

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Archidendron chevalieri (Kosterm.) I.C. Nielsen (Leguminosae: Mimosoideae) - A New Record to India from Arunachal Pradesh

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Abstract

Archidendron chevalieri (Kosterm.) I.C. Nielsen (Leguminosae: Mimosoideae): is reported first time in India from Arunachal Pradesh. This species differs from other Indian *Archidendron* species by having pot-form petiole gland; peduncle ca. 1.1-2 cm with sparsely pubescence; densely villous corolla; 46 stamens; 1.5 cm long filaments and yellow anthers. Detailed descriptions, photographs, habitat and ecology are provided for easy identification. Additionally, a comparison of the diagnostic characters between this species and *Archidendron kerrii* is given.

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Keywords

Archidendron chevalieri
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Introduction

Archidendron F. Muell. is a tropical genus comprising ca. 100 species, distributed from India, Sri Lanka, Continental Southeast Asia, throughout Malaysia to Northeast Australia, Micronesia and Solomon Islands (De Wit, 1952; Nielsen, 1979, 1983, 1985 and 1992; Nielsen et al., 1984; Wu and Nielsen, 2010). In India, this genus is so far known to be represented by 9 species (Sanjappa, 1992; Gangopadhyay and Chakrabarty, 1993; Dash and Sanjappa, 2011).

Materials and methods

Regular plant exploration tours are being conducted to different parts of Arunachal Pradesh for the survey and collection of data on medicinal plants to enrich the

collections in medicinal plants repository of North Eastern Institute of Folk Medicine (NEIFM), located at Pasighat, Arunachal Pradesh. The specimens collected were vouchered and identified by referring to various published literature on National Flora and Floras especially pertaining to north eastern states. During the course of study, a species of *Archidendron* was collected from the forest areas of Pasighat, Arunachal Pradesh and subsequently identified as *Archidendron chevalieri* (Kosterm.) I.C. Nielsen. Interestingly, the study of specimens housed at CAL, ASSAM, ARUN and BSHC and scrutiny of literature (Baker, 1878; Kanjilal et al., 1938; Sanjappa, 1992; Chowdhery et al., 1996) revealed that this species is hitherto not collected from India and is so far known to occur in S. China, Thailand and Vietnam. Hence, the present collection of this species forms a new distributional record for the Flora of India. The voucher

specimens will be deposited at CAL and at North Eastern Institute of Folk Medicine (Ministry of AYUSH, Govt. of India) Pasighat, Arunachal Pradesh, for future reference.

Results and discussion

Taxonomic treatment

Archidendron chevalieri (Kosterm.) I.C. Nielsen in Adansonia, ser. 2, 19: 28. 1979; I.C. Nielsen & al. in Opera Bot. 76: 77. 1984; D. Wu & I.C. Nielsen in C.Y. Wu & al., Fl. China 10: 69. 2010. *Cylindrokelupha chevalieri* Kosterm. in Reinwardtia 5: 248. 1960. *Albizia chevalieri* (Kosterm.) Y.H. Huang in Acta Bot. Yunnan. 5: 139. 1983, non Harms, 1907.

Small tree, ca. 3.5 m tall, trunk ca. 9 cm in diameter, branchlets gray, terete, glabrous with lenticels. Leaves compound, with 2 pairs of pinnae, petioles ca. 2-5.5 cm long; petiolar gland raised, ca. 0.5-1 mm high, 1 mm in diam., pot-form; rachis ca. 10.6-12.5 cm, glabrous, end with similar gland at apex; petiolules 5 mm and 7 mm

long in distal pinnae, wrinkled; leaflets strictly in 2 pairs, opposite rarely subopposite, elliptic-ovate-obovate, ca. 8-27 × 8-13.5 cm, upper leaflets larger, glabrous on both sides; lateral veins ca. 5 to 6 pairs, connected by parallel tertiary veins; base cuneate, rarely asymmetric, wavy margin, concave prominent beneath, apex acuminate. Inflorescence: terminal or axillary, narrow paniced, rachis ca. 11.5 cm long, peduncle ca. 1.1-2 cm, sparsely pubescence. Flowers head, 10-20, white, fragrant, sessile, bract ca. 1mm, obovate, hairy margin, apex acuminate. Calyx cupular, 2.5-3 mm, glabrous, 5 lobed, equal, apex acute. Corolla campanulate, ca. 0.5 cm length, 0.2 cm width in bud, densely villous, lobes linear-oblong, apex curved backward. Stamens ca. 46, tube as long as corolla tube, filaments 1.5 cm long, glabrous; anthers yellow, minute. Ovary cylindric, glabrous, stipe ca. 2.5 mm; style ca. 15 mm. Legume slightly curved or straight, cylindric, ca. 5-15 × 3-4 cm, dehiscent along both sutures; valves brown, leathery, netted, turbinate both ends. Seeds 4-7, ca. 3 × 2.7 cm, brown, middle ones shortly cylindrical, seeds on ends turbinate (Fig. 1).

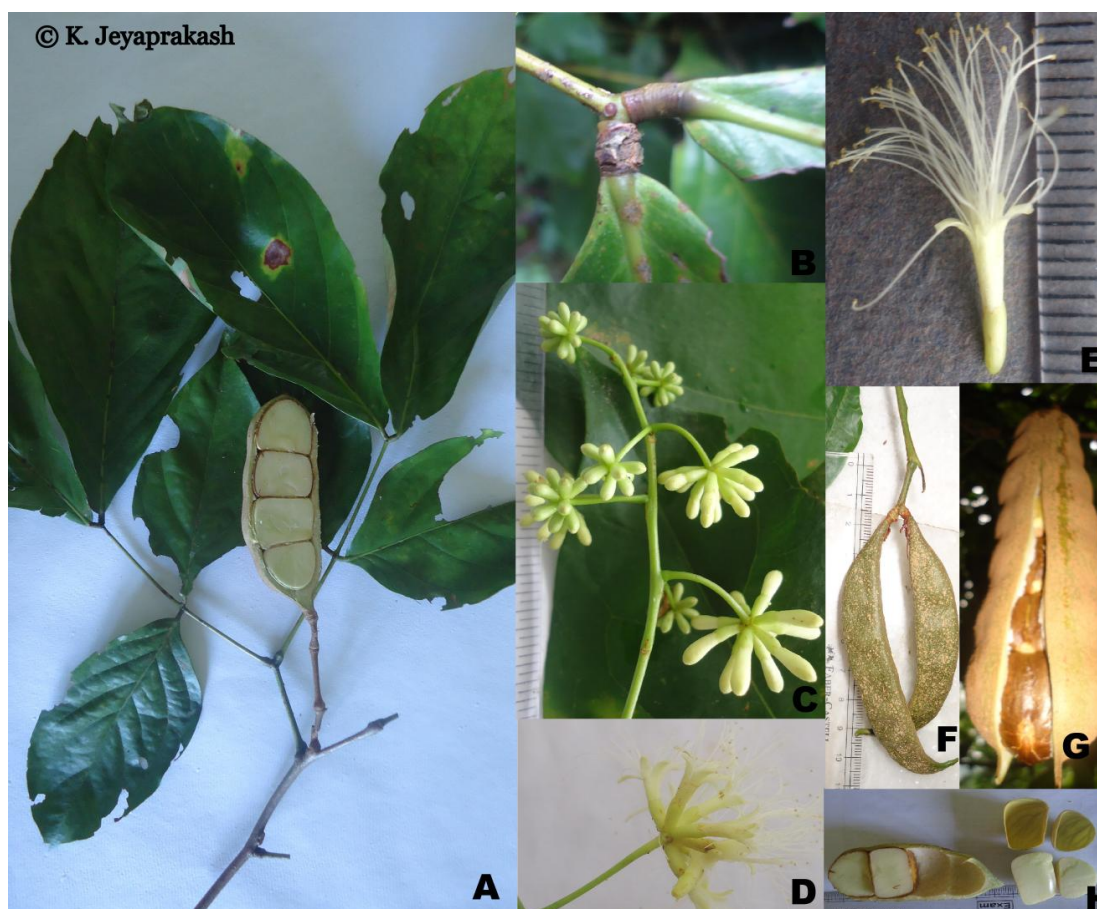


Fig. 1: *Archidendron chevalieri*: **A.** Fruiting-twig; **B.** Petiolar gland; **C.** Inflorescence; **D.** Flowers; **E.** Single flower (enlarged); **F.** Young pods; **G.** Matured dehisced pod; **H.** Pod with seeds (inner view).

Flowering and fruiting: April–May.

Distribution: India (Arunachal Pradesh), China (Guangxi) and Vietnam.

Habitat and ecology: The commonly associated species in the habitat include, *Mikania micrantha* Kunth., *Cyathula prostrata* (L.) Blume, *Polygonum chinense* L., *Dioscorea bulbifera* L., *Elsholtzia blanda* (Benth.) Benth., *Piper sylvaticum* Roxb., *Chloranthus officinalis* Blume, *Mussaenda frondosa* L. and *Solanum spirale* Roxb., *Cissampelos pareira* var. *hirsutus* (Buch.-Ham.,

ex DC.) Forman, *Crateva magna* (Lour.) DC., *Brucea mollis* Wall. ex Kurz, *Ampelocissus hoabinhensis* C.L. Li, *Oxyspora paniculata* var. *paniculata* (D.Don.), DC., *Eleutherococcus trifoliatus* (L.) S.Y. Hu, *Psilanthus benghalensis* (Roxb. Ex Schult.), *Paederia foetida* L., *Ervatamia divaricata* (L.) Burkill, *Rauvolfia verticillata* (Lour.) Baill., *Leptopus clarki* (Hook.f.) Pojark., Hornem. and *Elatostema sessile* J.R.Forst. & G.Forst.

The comparative key for morphological characters of *Archidendron chevalieri* and *Archidendron kerrii* is provided in Table 1 for easy identification.

Table 1. Comparative key for morphological characters of *Archidendron chevalieri* and *Archidendron kerrii*.

Characters	<i>A. chevalieri</i>	<i>A. kerrii</i>
Stem and branch lets	Shrub to Small tree, ca. 3.5 m tall, trunk ca. 9 cm in diameter, branchlets gray, terete, glabrous with lenticels.	Tree, 3-10m, trunk c. 15 cm in diameter, branchlets terete, glabrous with raised lenticels and flaking scales.
Leaves	Leaf, compound, with 2 pairs of pinnae, petioles ca. 2-5.5 cm long; petiolar gland raised, ca. 0.5-1 mm high, 1 mm in diam., pot-form; rachis ca. 10.6-12.5 cm, glabrous, end with similar gland at apex; petiolules 5 mm and 7 mm long in distal pinnae, wrinkled; leaflets strictly in 2 pairs, opposite rarely subopposite, elliptic-ovate-obovate, ca. 8-27 × 8-13.5 cm, upper leaflets larger, glabrous on both sides; lateral veins ca. 5 to 6 pairs, connected by parallel tertiary veins; base cuneate, rarely slightly asymmetric, wavy margin, concave prominent beneath, apex acuminate.	Petioles 2-5 cm long, terete, glabrous, petiolar glands crater-shaped with raised margin, present just below the insertion point of pinnae and first leaflet pair; rachis 1.5-6 cm long, glabrous to very sparsely minute blackish hairy; Pinnae 1 pair leaflets 1-2 (3) pairs, opposite or subopposite, distal pinnae with 1 pair of leaflets; Petiolules 1-3 mm long, wrinkled; Leaflets ovate-oblong or elliptic-oblong, 4-17 × 3-9.5 cm, base cuneate, asymmetric, apex acuminate, entire, coriaceous, glabrous; lateral veins 6-7 pairs, prominent beneath.
Inflorescence	Terminal or axillary, narrow paniced, rachis ca. 11.5 cm long, peduncle ca. 1.1-2 cm, sparsely pubescence. Flowers head, 10-20, white, fragrant, sessile, bract ca. 1mm, obovate, hairy margin, apex acuminate. Calyx cupular, 2.5-3 mm, glabrous, 5 lobed, equal, apex acute. Corolla campanulate, ca. 0.5 cm length, 0.2 cm width in bud, densely villous, lobes linear-oblong, apex curved backward. Stamens ca. 46, tube as long as corolla tube, filaments 1.5 cm long, glabrous; anthers yellow, minute. Ovary cylindrical, glabrous, stipe ca. 2.5 mm; style ca. 15 mm.	Terminal or axillary, paniced glomerules, rachis up to 15 cm long, glabrous. Flowers 10-15, sessile, bract absent or minute. Calyx cupular, 2.5-3.5 mm; teeth minute; acute or often mucronate at apex. Corolla narrowly funnel shaped, 7-9mm long, glabrous; lobes 5, narrowly lanceolate, 2-2.5 mm long, apex curved backward, margin minutely pubescent; tube 5-6.5mm long, glabrous. Stamens 25-40, filament 10-11mm long, glabrous, stamina tube 5-6 mm long, equalling to corolla tube. Ovary oblong, 2-2.5 mm long, glabrous, ovules 4-10; stipe 1-2.5 mm long; style 10-11mm long, stigma funnel-shaped.
Fruit and seed	Legume slightly curved or straight, cylindrical, ca. 5-15 × 3-4 cm, dehiscent along both sutures; valves brown, leathery, netted, turbinate both ends. Seeds 4-7, ca. 3 × 2.7 cm, brown, covered by aril when tender, middle seeds ellipsoidal, both ends (in fruit) seeds turbinate.	Pods strait or slightly bowed, cylindrical, 4-10 × 1.5-2.5 cm, turgid, glabrous, often deeply constricted between seeds, rounded at ends. Seeds 2-10, middle seeds disc-shaped, terminal seeds oblong with one end truncate, testa blackish.

Specimen examined: India, Arunachal Pradesh, Pasighat, Yaapgo Valley, 226 m, 02.05.2016, K. Jeyaprakash 000478 (NEIFM Herbarium, Pasighat, Arunachal Pradesh) (Fig. 2).

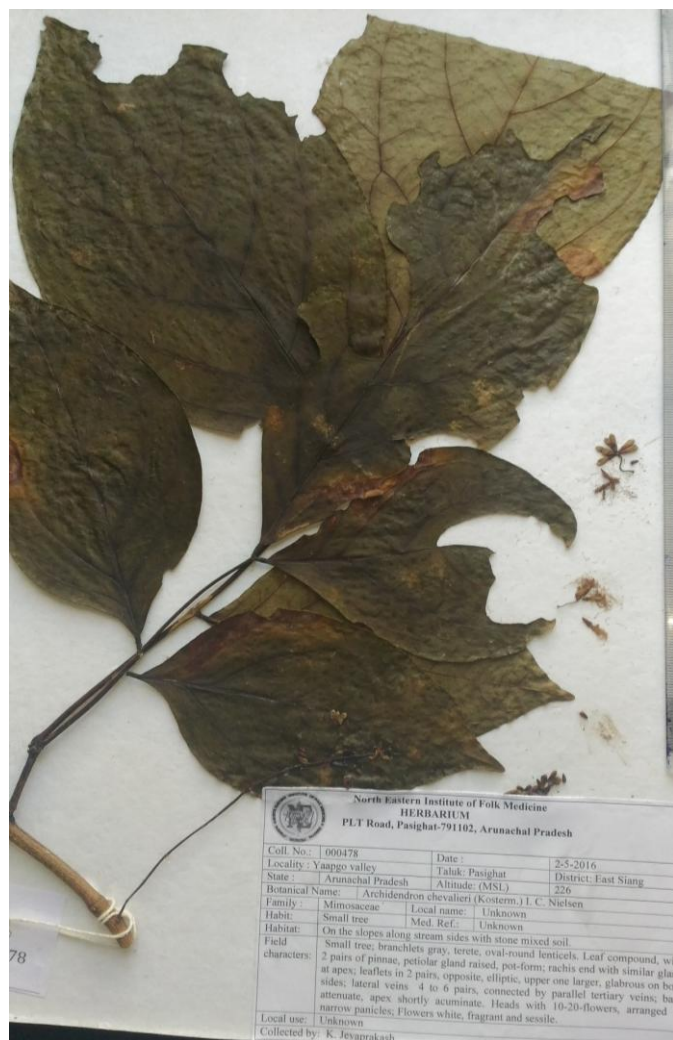


Fig. 2: Herbarium specimen of *Archidendron chevalieri* (NEIFM-000478).

Conclusion

Archidendron chevalieri (Kosterm.) I.C. Nielsen (Leguminosae: Mimosoideae) was found that growing in stone mixed soil, undisturbed forest areas in Yaapgo Valley of Pasighat, Arunachal Pradesh. Data's given about *A. chevalieri* will play major role for further research on field surveys to enhance knowledge about the Indian *Archidendron*.

Conflict of interest statement

Authors declare that they have no conflict of interest.

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