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(Title) *Derris gamblei* sp. nov. (Fabaceae) from Tamil Nadu, India

(Abstract)

*Derris* *gamblei* (Fabaceae) is described as a new species from the Pudukkottai district of Tamil Nadu state, India. It resembles the Indian species *Derris thothathrii*, but differs by its short inflorescence, …. The new species has a peculiar pollination mechanism … and a chromosome number (2n = 52) unique in the genus. *Derris* *gamblei* is so far known from a single population on a calcareous grassland slope and is assessed as ‘Data Deficient’ (DD) based on the IUCN criteria. A key to all Indian species of *Derris* is included. In addition, a lectotype for *Derris thothathrii* is designated.

Keywords: new species, *Derris,* India

(Introduction)(this heading is optional)

The genus *Derris* Lour. was first established by Loureiro (1790) in flora Cochinchinensis. It is a small- or medium-sized genus of Fabaceae consisting of approximately 50 species worldwide (Adema 2000, Sirichamorn et al. 2012) of which 2 species are recorded in India. …

As part of our ongoing exploration of the flora of Tamil Nadu (Raja et al. 2019, 2022), we found a small population of an unknown species of *Derris*. After thorough comparison with the relevant literature (Adema 2000, Sirichamorn et al. 2012) and herbarium specimens stored at MH, W and LD\*, we concluded that our plants represent an undescribed species which we aim to describe in detail here.

[\* *Generally, the acronym to the herbarium indexed in the Index Herbariorum is sufficient. There is no need to provide a reference to Thiers. If you have used a herbarium acronym that is not present in Index Herbariorum, the full herbarium name should be given and not abbrevations.*]

Material and methods

This study is based on plant material collected by us in Tamil Nadu, India. Specimens were preserved as herbarium material following standard protocols, but also in ethanol. The latter were used for micromorphological and anatomical studies using … For the description of all morphological characters, 15 measurements were taken from at least 5 different plant individuals and means and ranges are presented. For the anatomical studies, transverse sections of stems were made and stained in …, prior to observation through a … microscope. Microscopic photos were taken with a … camera at the Department of microscopy, Tamil Nadu university.

Seeds were collected and cultivated in the botanic garden of Nadu University, where root tips for chromosome studies were collected, stained in … and studied by Ms Raja at the Department of Genetics, Delhi University.

Taxonomic treatment

*Derris* *gamblei* S.Soosairaj, P.Raja & N.Dhatchanamoorthy sp. nov. (Fig. 1–2)

(Diagnosis)

A species similar to *D. thothathrii*, but differing in stem profusely branched (vs unbranched), flowers only 5 mm long (vs 10–15 mm) ….

**Type**: India, Tamil Nadu: Pudukkottai district, Vamban, 10°21′14.4″N, 78°55′51.2″E\*, 12 m a.s.l., 28 Mar.\*\* 2016, P. Raja 4677 (holotype: MH, isotypes: RHT).

[\* *give geographical coordinates in degrees, minutes (and seconds)*]

[\*\**Abbreviations for months: Jan., Feb., Mar., Apr., May, June, July, Aug., Sept., Oct., Nov., Dec. (full stop after month abbreviation ONLY in NJB taxonomy manuscripts)*]

*Etymology*

The specific epithet is chosen to honour Mr. Gamble for his outstanding contribution to ….

*Description*

Woody climber, 3 m high; branchlets thinly pubescent when young, glabrous at maturity. Leaves 13–19 cm long, ….

Chromosme number 2n = 52.

*Phenology*

*Derris* *gamblei* was observed flowering in March–April, and fruiting from May and onwards.

*Distribution and ecology*

*Derris* *gamblei* was found growing on a calcareous grassland slope near Vamban village at Pudukkottai district, Tamil Nadu, India. ….

*Conservation status*

*Derris* *gamblei* is so far only known from a single population at the type locality, in 2023 consisting of 56 mature individuals, which is threatened by …. It can be categorized as ‘Data Deficient’ (DD) following the IUCN categories and criteria (IUCN 2014).

*Similar species*

*Derris* *gamblei* is a distinct species, although it looks similar to *D. thothathrii* of the section *Dipteroderris* Benth. in certain features…. It may also be confused with the widespread *D. vulgaris*, but these species may be distinguished by ….

*Local names and uses*

In India *D.* *gamblei* is called … (Hindi) and the local people use to consume it as a vegetable.

*Additional specimen examined (paratype)*

India, Tamil Nadu: Pudukkottai district, Vamban, 10 May 2016, S. Soosairaj and P. Raja 4723 (RHT, Dept of Botany, St Joseph’s College, Tiruchirappalli).

*Derris thothathrii* (C.Y.Wu) X.He (He 1999, p. 123)

*Rabdosia thothathrii* C.Y.Wu (Wu and Li 1897b, p. 987).

**Type**: India, Tamil Nadu: Pudukkottai district, Vamban, 28 Dec. 1895, C.Y. Wu 5347 (lectotype, designated here: MH).

*Notes on typification*

When this species was first described, Wu (1897) indicated two collections as the type material. We found one of them at MH while the other is now at LD (curator T. Tyler, pers. comm.). The specimen at MH appears to be the best preserved and the only one showing all the diagnostic characters of the flowers (the LD specimen was collected at fruiting stage). Hence, we here designate the MH specimen as the lectotype.

Conclusions

From our studies we can conclude that…

Key to the species of *Derris* in India

1. Stem less than 9 m …………………………………………………………. *D. gamblei*

– Stem more than 9 m………………………………………………………………………… 2

1. Trunk not swollen ………………………………………………..…………….. *D. thothathrii*
* Trunk swollen at base……………………………………………………..……. *D. vulgaris*

References

Smith, A. 1999. A study of…

**Figure lengend example:**

Figure 1. *Derris gamblei* sp. nov. (Fabaceae) from Tamil Nadu, India. (A) Habitat, (B) stem, (C) flower. Photo by Nisse Nilsson. Scale bar: (A) = 1 cm, (B)–(C) = 3 cm.

[*Please make sure that the labels in the figure legend and the figure match*]