

Epirixanthes compressa Pendry, a new mycoheterotrophic species of Polygalaceae from Thailand

COLIN A. PENDRY¹

ABSTRACT. *Epirixanthes compressa* Pendry (Polygalaceae), a new species from Pong Nam Ron District, southeastern Thailand is described and a revised key to the genus is presented.

KEY WORDS: *Epirixanthes compressa*, mycoheterotroph, new species, Polygalaceae, Thailand.

INTRODUCTION

The genus *Epirixanthes* Blume is found from E. India to China, and throughout Malesia as far as the Solomon Islands, with its greatest diversity in Borneo where all five previously described species occur (Meijden, 1988). *Epirixanthes* are inconspicuous [mycoheterotrophs] of the forest floor and are easily overlooked by plant collectors. Meijden (1988) considered them to be rare, but noted that they may be locally abundant and they are undoubtedly much more frequent than suggested by the rather scarce collections in herbaria. They are usually found growing on humus-rich soil amongst leaf litter under the shade of primary forests, but have also been recorded from tracksides in secondary forest (e.g. Newman et al. LAO 660).

DESCRIPTION

***Epirixanthes compressa* Pendry, sp. nov.**
Epirixanthes elongatae Blume affinis sed differt spicis densis cum bracteis et perianthiis persistentibus. Type: Thailand, Chanthaburi, Pong Nam Ron District, Khlong Khrue Wai Wildlife Sanctuary, 12 Jan. 2009, Middleton, Karaket, Lindsay, Phutthai & Suddee 4692 (holotype **BKF**, isotype **E!**).

Erect mycoheterotrophic herb to 15 cm. Stems reddish, simple or branched, ridged, glabrous to minutely sparsely puberulous. Leaves triangular to ovate, 2–3 mm long, apex acute to

obtuse. Inflorescences terminal, spike-like, pale brown, to 2.5 by 0.4 cm, apex somewhat pointed. Bracts narrowly triangular, ca 0.8 by 0.3 mm, minutely ciliate. Flowers sessile on ca 0.2 mm long pedicels, 1.2–1.8 mm long, whitish brown. Sepals 5, free, ca 0.6 mm long, apex of outer sepals more acute than inner. Petals 3, the upper petals connate less than half way to the cucullate lower petal (keel), upper petal lobes ca 0.5 mm long, free part of the keel ca 0.8 mm long. Anthers 4, filaments united in a staminal sheath open on the upper surface and adnate to the corolla. Disk absent. Ovary broadly elliptic, ca 0.4 by 0.5 mm; ovules 2. Style bent upwards, ca 0.6 mm long. Stigma slightly 2-lobed. Capsule reniform, ca 0.6 by 0.9 mm, enclosed in the sepals and persistent corolla. Seeds black, ellipsoidal, ca 0.5 by 0.3 mm.

Thailand.— SOUTHEASTERN: Chanthaburi [Pong Nam Ron District, Khlong Khrue Wai Wildlife Sanctuary, trail from Khlong Ta Chan Ranger Substation, 12° 50.3' N 102° 19.0' E, 12 Jan. 2009, Middleton, Karaket, Lindsay, Phutthai & Suddee 4692 (type: **BKF**, **E!**)].

Ecology.— Bamboo thicket in dry evergreen forest; ca 300 m altitude. Flowering and fruiting: January.

Conservation status.— The only known population is from a well protected Wildlife Sanctuary, so it is probably under no immediate threat. It is quite likely that the species is more

¹ Royal Botanic Garden Edinburgh, 20A Inverleith Row, Edinburgh, EH3 5LR. c.pendry@rbge.org.uk

widespread because it is so easily overlooked and it certainly requires more research before a definitive red list category can be assigned. Proposed IUCN red list category ‘Data Deficient’ (IUCN, 2010).

Notes.— Similar to *Epirixanthes elongata* Blume, but differing in its much denser spike with persistent bracts and perianths.

DISCUSSION

Epirixanthes compressa is most similar to the only other species of *Epirixanthes* found in Thailand, *E. elongata* Blume, which also has small (ca 1 mm long), attenuate bracts, a distinct style and a more or less pointed inflorescence, but differs from it in the compactness of its spike and persistence of its bracts and perianth (Fig. 1). The raceme of *E. compressa* has a dense, cylindrical shape and rather uniform appearance along its

whole length, quite unlike the lax, elongate spike which gives *E. elongata* its name. The differences are accentuated by the persistence in *E. compressa* of the bracts and perianth remains which both remain on the inflorescence until they are shed at the same time as the capsules. By contrast the perianth of *E. elongata* is shed as soon as flowering is finished, and the inflorescence is clearly differentiated into an upper section with buds and immature flowers, a mid-section with open flowers and a lower section with ripening capsules.

The other species of *Epirixanthes* also have dense spikes, but they are all rounded at the apex. In *E. cylindrica* Blume, *E. papuana* J.J.Sm. and *E. kinabaluensis* T.Wendt the bracts persist after flowering, and remain on the lower section of the inflorescence after the capsules and associated floral remains have been shed. *Epirixanthes elongata* is

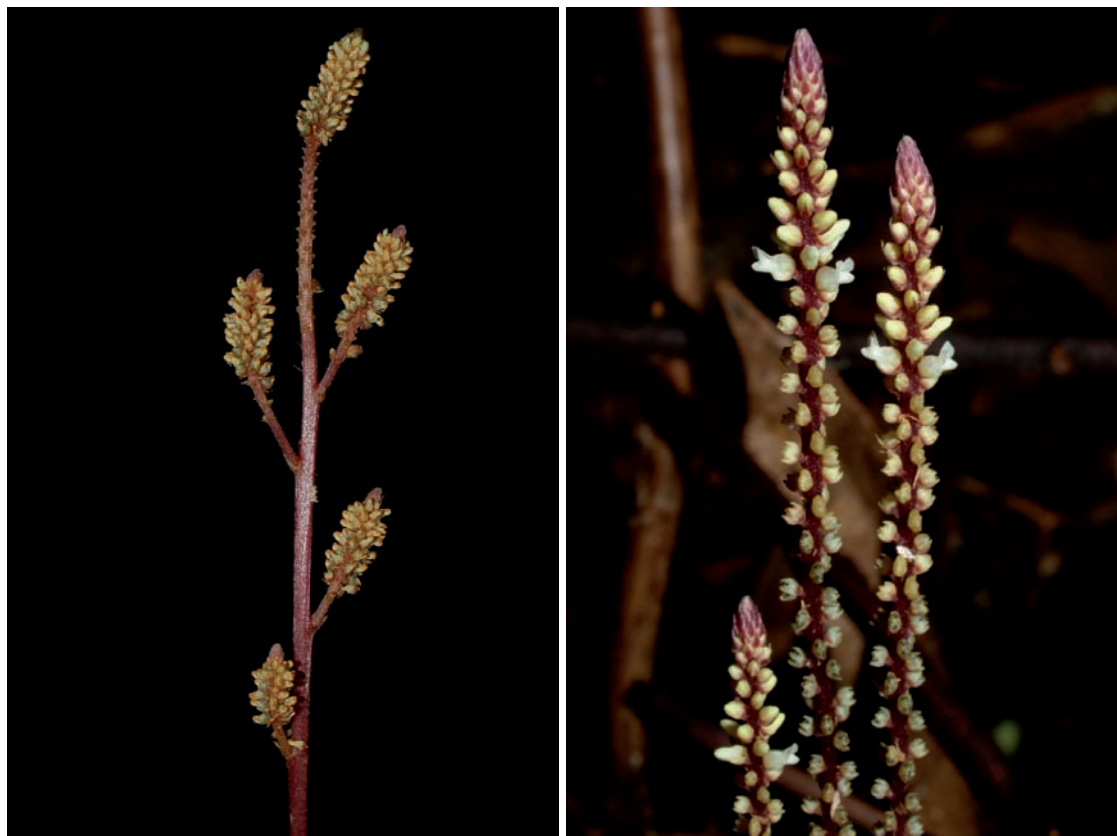


Figure 1. Left: Compact, cylindrical inflorescence of *Epirixanthes compressa* Pendry without clearly differentiated zones of flowering and fruiting because of the persistence of bracts and perianth remains until the ripe capsules are shed. Photograph by T. Phutthai. Right: Elongate inflorescence of *Epirixanthes elongata* Blume showing clearly differentiated zones of immature flowers, open flowers and maturing capsules. Photograph by Martin Dančák.

the most widespread species of the genus and is found from eastern India to southern China and across Malesia as far as Seram. The other species are widely (*E. papuana*, *E. cylindrica*) or more

narrowly (*E. kinabaluensis*, *E. pallida* T.Wendt) distributed in Malesia with all species apart from *E. compressa* present in Borneo.

KEY TO THE SPECIES OF *EPIRIXANTHES* (ADAPTED FROM MEIJDEN, 1988)

- | | |
|--|--------------------------------|
| 1. Bracts caducous before the flowers are fully developed | |
| 2. Style longer than the ovary. Bracts cuspidate | <i>E. elongata</i> |
| 2. Style much shorter than the ovary. Bracts rounded | <i>E. pallida</i> |
| 1. Bracts persistent until or after the fruits are mature | |
| 3. Flowers subtended by a bract and pair of subulate bracteoles. Fruits fully enclosed by the sepals | <i>E. papuana</i> |
| 3. Bracteoles absent. Apex of fruit not enclosed by the sepals | |
| 4. Bracts elliptic to obovate, imbricately covering the flower buds | <i>E. cylindrica</i> |
| 4. Bracts lanceolate, not imbricately covering the flower buds | |
| 5. Bracts ca 1 mm long, not persisting after the fruits have been shed | <i>E. compressa</i> |
| 5. Bracts 2–2.5 mm long, persisting until after the fruits have been shed | <i>E. kinabaluensis</i> |

ACKNOWLEDGEMENTS

I would like to thank Dr David Middleton and Dr Stuart Lindsay for showing me their Polygalaceae collections from Thailand, Dr Somran Suddee for checking BKF for more material of the species and Thammarat Phutthai and Martin Dančák for kindly allowing me the use of their excellent photographs.

REFERENCES

- IUCN Standards and Petitions Subcommittee. (2010). Guidelines for Using the IUCN Red List Categories and Criteria. Version 8.1. Prepared by the Standards and Petitions Subcommittee in March 2010. <http://intranet.iucn.org/webfiles/doc/SSC/RedList/RedListGuidelines.pdf>
- Meijden, R. van (1988) Polygalaceae. In: Van Steenis, C.G.G.J. & de Wilde, W.J.J.O. (eds.), *Flora Malesiana* ser. 1(10): 455–539. Kluwer, Dordrecht.