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Taxonomic novelties and pollen morphological study in the genus *Neo-uvaria* (Annonaceae)

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Abstract

Two new species of *Neo-uvaria* are described from southern Thailand: *Neo-uvaria sparsistellata* and *N. telopea*. In addition, new combinations are made for two *Mitrephora* species from the Philippines: *N. merrillii* and *N. viridifolia*. The pollen morphology of eight *Neo-uvaria* species and three species of the closely related genus *Enicosanthum* is studied, using light, scanning electron and transmission electron microscopy. The systematic affinity of *Neo-uvaria* is discussed on the basis of macromorphology, pollen morphology and molecular phylogenetics. The genus *Enicosanthum* appears to be the closest relative of *Neo-uvaria.*

Key words: miliusoid clade, palynology, short branch clade, systematics, taxonomy, the Philippines, Thailand

Introduction

Neo-uvaria Airy Shaw is one of the poorly known genera of Asian Annonaceae. It was erected by Airy Shaw (1939) based on *Popowia foetida* Maingay ex Hooker & Thomson (1872: 69) and *Uvaria acuminatissima* Miquel (1865: 6). The main reasons for establishing *Neo-uvaria*, which he thought to be allied to *Uvaria* Linnaeus (1753: 536), were the tree habit and the stellate hairs. *Uvaria* species, in contrast, are usually woody climbers. In a revision of the Malayan Annonaceae, Sinclair (1955) stated that *Neo-uvaria* is likely to be related to *Popowia* Endlicher (1839: 831). The only resemblance between *Uvaria* and *Neo-uvaria* he observed was the stellate indumentum.

Van Heusden (1992) studied the floral morphology of all Annonaceae. She noticed that the petals of *Neo-uvaria* are unusually thick and fleshy. Additionally, the presence of stellate indumentum is also peculiar for *Neo-uvaria* because most annonaceous genera do not possess stellate hairs. Therefore, a genus of tall trees having stellate indumentum and unusually thick and fleshy petals was, according to her, somewhat difficult to place in any group she recognized.

Recent phylogenetic studies using molecular data (Mols *et al*. 2004a, b, Richardson *et al*. 2004) have confirmed that *Neo-uvaria* is unrelated to *Uvaria*, since *Neo-uvaria* was resolved in the 'miliusoid clade', which also includes *Popowia*. All members of the 'short branch clade' (SBC), to which the miliusoid clade belongs, are shrubs or small to large trees, while the occurrence of climbers is restricted to the 'long branch clade' (LBC), which includes *Uvaria* and allied genera (Richardson *et al*. 2004).

Recent collections from southern Thailand show the aforementioned features of *Neo-uvaria*: tall trees, stellate indumentum and remarkably thick/fleshy petals (Fig. 1A, B, E). Comparisons with the known *Neo-*

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