

***Micrechites lancifolia* (Apocynaceae: Apocynoideae), a new record for Singapore**

D.J. Middleton¹, H.K. Lua² & P.K.F. Leong¹

¹Singapore Botanic Gardens, National Parks Board,
1 Cluny Road, 259569, Singapore

²National Biodiversity Centre, National Parks Board,
1 Cluny Road, 259569, Singapore
david_middleton@nparks.gov.sg

ABSTRACT. *Micrechites lancifolia* (Hook.f.) D.J.Middleton & Livsh. is newly recorded for Singapore. A description and provisional conservation assessment are provided.

Keywords. Conservation assessment, Nee Soon swamp forest, *Vallariopsis*

Introduction

In January 2016 a plant was collected that was identified by the first author as *Vallariopsis lancifolia* (Hook.f.) Woodson, a new genus and species record for Singapore. This is a widespread species, known from Peninsular Malaysia, Sumatra and Borneo (Middleton, 2007, 2011), but has been very infrequently collected. Around half of the known collections were collected in the nineteenth century and only one was previously collected in the twenty-first century. As the genus *Vallariopsis* is monotypic (Rudjiman, 1987) and no existing material was suitable for inclusion in prior molecular studies (e.g. Livshultz et al., 2007; Middleton & Livshultz, 2012), the new collection from Singapore also presented an excellent opportunity to investigate the relationships of *Vallariopsis lancifolia* to other Apocynaceae. Livshultz et al. (2018) found that *Vallariopsis lancifolia* is nested in the genus *Micrechites* Miq. and made a new combination for it, *Micrechites lancifolia* (Hook.f.) D.J.Middleton & Livsh. As another species in this genus, *Micrechites serpyllifolius* (Blume) Kosterm., is already known from Singapore (Middleton, 2007) it is not, after all, a new genus record.

Here we record this species as new for Singapore and provide a description and provisional national conservation assessment for it following the guidelines of Davison (2008). As it is known in Singapore only from a single collection the description is for the species throughout its range, updated from the descriptions provided by Middleton (2007, 2011).

Micrechites lancifolia (Hook.f.) D.J.Middleton & Livsh., Taxon 67: 355. (2018). – *Vallaris lancifolia* Hook.f., Fl. Brit. India 3: 651 (1882); King & Gamble, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 74(2): 461 (1907); Ridley, Fl. Malay Penins. 2: 352

(1923). – *Vallariopsis lancifolia* (Hook.f.) Woodson, Philipp. J. Sci. 60: 228 (1936); Rudjiman, Agric. Univ. Wageningen Pap. 86-5: 89 (1987); Middleton, Fl. Males., Ser. 1, Spermat. 18: 409 (2007); Middleton, Fl. Penins. Malaysia, ser. II, 2: 198 (2011). – TYPE: Peninsular Malaysia, *Maingay 1846* [=Kew Distr. No. 1102] (lectotype K [K000857600], effectively designated by Rudjiman (1987); isolectotypes A [00093158], K [K000857599], L [L0004779]). (Fig. 1)

Climber without tendrils, to 11 m tall, stem to 3 cm diameter, latex white. **Branches** lenticellate, glabrous. **Leaves** opposite, those of a pair equal; petiole 0.2–1.5 cm long, glabrous or sparsely puberulent throughout; lamina papery, narrowly elliptic or ovate, 1.7–9 × 0.4–3.5 cm, 2.2–5.7 times as long as wide, apex acuminate to caudate, rarely to obtuse, base cuneate to acute, glabrous above and beneath, lateral veins 8–19 pairs, hardly distinct from tertiary venation, tertiary venation indistinct reticulate. **Inflorescences** terminal and axillary, cymose, 1–2.2 cm long, shorter than subtending leaves, 2–11-flowered; peduncle 1–8 mm long; pedicels 3–9 mm long. Flowers 5-merous. **Calyx** of free lobes or these slightly fused into a tube at base, lobes ovate, 1–1.5 × 0.5–0.9 mm, 1.3–2 times as long as wide, apex acute to obtuse, ciliate, sometimes puberulent at apex, otherwise glabrous, with colleters in the sepal sinuses inside. **Corolla** white or pale yellow, tube 3.8–5.3 mm long, consisting of a narrow cylindrical part and an upper wider part starting at the point of stamen insertion; lobes in bud overlapping to the right, falcate, 3.5–5.7 × 1.5–2.7 mm, c. twice as long as wide, obtuse or acute at the apex, glabrous outside; densely pubescent at base of lobes and in upper tube with clavate hairs. **Stamens** inserted at 2.1–3.3 mm from corolla base, slightly exerted from the corolla tube, adnate to the style head, anthers subsessile, narrowly triangular, 2.5–3.2 × 0.3–0.8 mm, 4–8.3 times as long as wide, apex acuminate, base sagittate, sterile at apex and base; pollen polyporate. Disc cup-shaped, of 5 square lobes, 0.4–0.7 mm long, shorter than the ovary. **Gynoeceium** 2-carpellate, free but apically united into a common style, superior, ovaries ovoid, 0.7–1.1 mm long, glabrous, ovules numerous, style c. 2.6 mm long; style head of a cup-shaped lower part c. 0.6 mm long and a columnar upper part c. 0.7 mm long. **Fruits** of paired follicles, long and thin, 30–60 cm long, 1.5–2.2 mm wide, glabrous. **Seed** grains long, narrow, linear, c. 22 mm long, 1.3 mm diameter, glabrous; coma terminal, 2.3–3 cm long, pointing towards fruit apex.

Distribution. Singapore, Peninsular Malaysia, Sumatra and Borneo.

Ecology. The plant was found growing at the edge of the forest and adjacent to the Nee Soon pipeline in an area that is occasionally inundated and can become swampy, especially during the rainy season. The habitat is bright but the plants are hardly exposed to direct sunlight. It was found scrambling in the canopy of two trees, a *Cratoxylum formosum* (Jacq.) Benth. & Hook.f. ex Dyer and *Carallia brachiata* (Lour.) Merr., climbing to a height of about 4 m high with the flowering branchlets dangling free below the canopy. Very little is known of the ecology of the species elsewhere in its range as collecting information is scanty but it has been collected in lowland forest and peat swamp forest up to 200 m altitude.

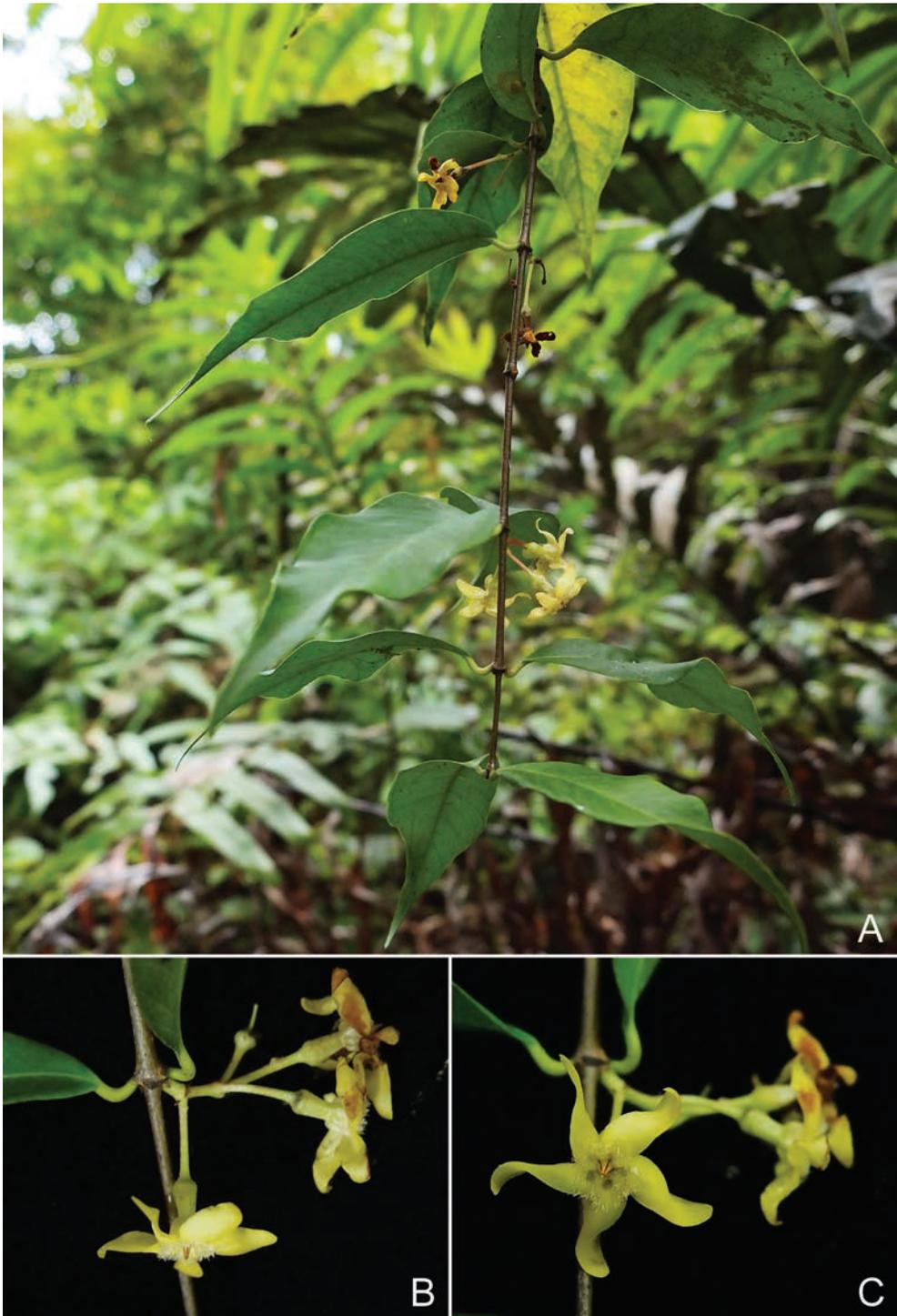


Fig. 1. *Microchites lancifolia* (Hook.f.) D.J.Middleton & Livsh. **A.** Hanging flowering branch. **B.** Inflorescence showing flower from the side. **C.** Inflorescence showing flower from the front. From Lua *et al.* SING 2016-015. (Photos: P.K.F. Leong)

Provisional IUCN conservation assessment. Globally Data Deficient (DD) under the criteria set out in IUCN (2016). As noted above, collections of this species have been made over quite a wide area but these are very few. As most of these collections were made more than 50 years ago and there has been extensive deforestation throughout Southeast Asia, it is impossible to calculate an accurate current Extent of Occurrence or Area of Occupancy. In Singapore we suggest a national conservation assessment of Critically Endangered (CR/D).

Singapore specimen examined. SINGAPORE: Nee Soon swamp forest pipeline, 27 Jan 2016, Lua et al. SING 2016-015 (SING [SING022229]).

Notes. Singapore is one of the most densely collected countries in the world for plant specimens (Niissalo et al., 2014), yet new species and new records continue to be found (e.g. Leong-Škorničková et al., 2014; Low et al., 2014; Leong-Škorničková & Boyce, 2015; De Kok, 2017). Many species presumed to be nationally extinct have been rediscovered (e.g. Chong et al., 2012), particularly from Nee Soon swamp forest (Davison et al., 2018; Chong et al., 2018). The collection of *Micrechites lancifolia* from Nee Soon further adds to these new records and rediscoveries and highlights the need to protect this last remaining patch of swamp forest in Singapore.

Micrechites lancifolia is readily distinguished from the only other species in Singapore, *M. serpyllifolius*, by the exerted anthers and the bud head wider than the tube before anthesis in *M. lancifolia* vs anthers completely included in corolla tube and the bud head equal to or narrower than the tube in *M. serpyllifolius*.

ACKNOWLEDGEMENTS. We are grateful to the staff of the Central Nature Reserve for their support during the field survey.

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