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Studies on Homalomeneae (Araceae) of Peninsular Malaysia III: *Homalomena kualakohensis*, a New Species from Kelantan

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Homalomena kualakohensis is described as a new species from Kelantan, Peninsular Malaysia. An updated key to Peninsular Malaysian species of *Homalomena* Cyrtocladon group is provided, and the new species is illustrated.

Key words: Araceae, *Homalomena*, Cyrtocladon Supergroup, Peninsular Malaysia, Kelantan

Ng *et al*. (2011a) provided an overview of *Homalomena* (excluding species of the Chamaecladon Supergroup, sensu Boyce & Wong, 2008) for Peninsular Malaysia. An outcome of the study was establishing that only one accepted species name exists for the rather numerous Cyrtocladon Supergroup (sensu Ng *et al*. 2011b) occurring in the Peninsular. However, while existing herbarium material of Peninsular Malaysian *Homalomena* is reasonably plentiful, much of the material is inadequately sampled, in particular inflorescences mostly collected far too late into anthesis, to enable description of taxonomic novelties. Currently the only reliable way to advance knowledge of *Homalomena* is to describe new taxa from living plants and then relate earlier herbarium collections to these novelties. Certainly preparing and drying specimens of known entities in the field provides the proverbial "Rosetta stone" for interpreting herbarium material. Sometimes, species that are quite nondescript in the field can be very distinctive when dried, drying with a particular coloration, or some other post-preparation quirk.

In June 2010, during a preliminary survey of the aroids of Taman Negara Kuala Koh, Gua Musang, Kelantan, the authors encountered a flowering species of Cyrtocladon *Homalomena* which based the combination of inflorescence morphology (spathe with a marked constriction between the lower part and limb), and ecology (mesophytic herb in lowland perhumid mixed dipterocarp forest) did not match any of the presently recognized Peninsular Malaysian species. Indeed, as noted above currently there is only one other described indigenous Peninsular Malaysian species in which the spathe is constricted (*H. rostrata* Griff.), and this occurs as a colonial helophyte primarily in inundated peatswamp forest. We are here describing the Kuala Koh species as new. It fits into the key of Ng *et al*. (in press) as follows.

Key to Peninsular Malaysian *Homalomena*: Cyrtocladon

1a. Colonial helophytes, often occurring in peatswamp forest and always in inundated situations. Spathe green or dark red at anthesis. Interpistillar staminodes equalling the pistils, the enlarged top smaller than the stigma. Pistillate and staminate flower zones not separated by a conspicuous zone of staminodes .... *H. rostrata*

1b. Solitary to clumping forest mesophytes in moist well-drained situations in lowland perhumid mixed dipterocarp forest. Spathe creamy white at anthesis. Interpistillar exceeding the pistils, the enlarged top equalling the stigma. Pistillate and staminate flower zones separated by a conspicuous zone of staminodes ..... **H. kualukohensis**

Homalomena kualakohensis Zulhazman M., P.C. Boyce & Mashhor M., **sp. nov.**—Figs. 1 & 2.

A congeneribus e peninsula malaysiana descriptis statim distincta spatha constricta in parte media inferiore dilute luteolorosea, staminodiis interpistillaribus pistillis consociatis superantibus, staminodiorum capitibus incrassatis stigmatis diametrum aequantibus, staminodiorum zona conspicua florum pistilatorum et staminatorum zonas secedenti.

Typus. Malaysia, Kelantan, Kuala Koh National Park, along the Ara Trail, 1 June 2010, *Zulhazman M. UMK00006*, (holo- Herbarium, Faculty of Agro Industry and Natural Resources, Universiti Malaysia Kelantan).

Medium-sized to somewhat robust clumping glabrous evergreen herbs to 60 cm tall, damaged vegetative tissues slightly aromatic (reminiscent of crushed shoots of *Anacardium occidentale*). *Stem* solitary, erect or creeping with the active portion ascending,18–21 cm long × 3–4.5 cm diameter, internodes 3–4 cm long, rooting along its length from nodes and through the petiole bases. *Leaves* up to 14 together, clustered towards shoot tips, spreading, *petiole* 24–55 cm long, slender, dark green the lower parts glossy-brownish-suffused, sheathing for 12–24 cm, < 1/3 of the petiole length, petiole insertion D-shaped in cross section, non-sheathing portion ca. 0.6 cm diameter above petiolar sheath, *petiolar sheath* conspicuous glossy brownish, open at the base but closed distally, margins entire, persistent, minutely hyaline, *leaf blade* 11–22 × 9–19 cm, triangular-saggitate to cordato-saggitate, posterior lobes somewhat triangular, less often ovate, the sinus almost 90°, naked, apex acute, tip mucronate, 3–5 mm long, adaxially dark green, lustrous, abaxial surface much paler green; mid-rib conspicuous, slightly sunken and paler than blade adaxially, ∩-shaped and abaxially sharply raised, especially in the lower part of the blade; *primary lateral veins* 10–13 on each side, the lower 3–4 emerging more-or-less simultaneously and spreading into the posterior lobes, deeply impressed abaxially, lending the blade a quilted appearance, *interprimary* veins somewhat less conspicuous than primaries, regularly alternating with them, slightly impressed adaxially, raised abaxially, *secondary venation* conspicuous, slightly raised abaxially, more or less obscure adaxially; tertiary venation forming a weak network, almost invisible in fresh material. *Inflorescences* up to 3 together; *peduncle* 15–18 cm long, ca. 0.3 cm diam., expanding to ca. 0.5 cm diam. at the spathe insertion, brownish red, streaked pale brown and with longitudinal short white raised striae and punctuations. *Spathe* (one examined) 6 cm long, 1.5 cm diam. (furled); *lower spathe* ovate-ellipsoid, oblique at spadix insertion on the peduncle, 2.5 cm long, inflating to ca. 1.5 cm wide at female anthesis, separated from the spathe limb by a moderate constriction, pale yellow, externally suffused and faintly striped medium pink; spathe limb to 3.5 cm long, 2 cm wide at the base, opening at anthesis to 3 cm wide, margins undulate, oblong-triangular, inside very pale creamy white, exterior pale to medium green. *Spadix* ca. 5.3 cm long, the whole somewhat sticky at anthesis; *stipe* ca. 9 × 5 mm, globose-terete, obliquely inserted on peduncle, pale cream with red speckles and staining. *Flowers: Pistillate flower zone* 2.2 × 0.9 cm, fusiform; *pistils* densely arranged, the lowermost somewhat expanded and seemingly sterile; depressed cylindrical-globose, ca. 2.5 × 2 mm, very pale yellow, *stigma* sessile capitate, weakly umbonate and slightly asymmetrical, very slightly smaller than the pistil; *interpistillar staminodes* exceeding the pistils, slender-stalked with a abruptly globose tip, the tip equalling the diam. of the stigma, white. *Interstice* equalling the staminate flower zone in diam., ca. 2.5 × 2.2 cm, densely clothed with 2–3 rows of white irregularly trapezoidal staminodes, these each comprising 1–4 anthers. *Staminate flower zone* 2.6 × 0.4 cm, cylindrical, tapering to an acute tip, seemingly fertile to the tip, very pale yellow; *staminate flowers* very densely packed and superficially difficult to differentiate as separate flowers, weakly and irregularly rhombohexagonal, each with 3–4 stamens,

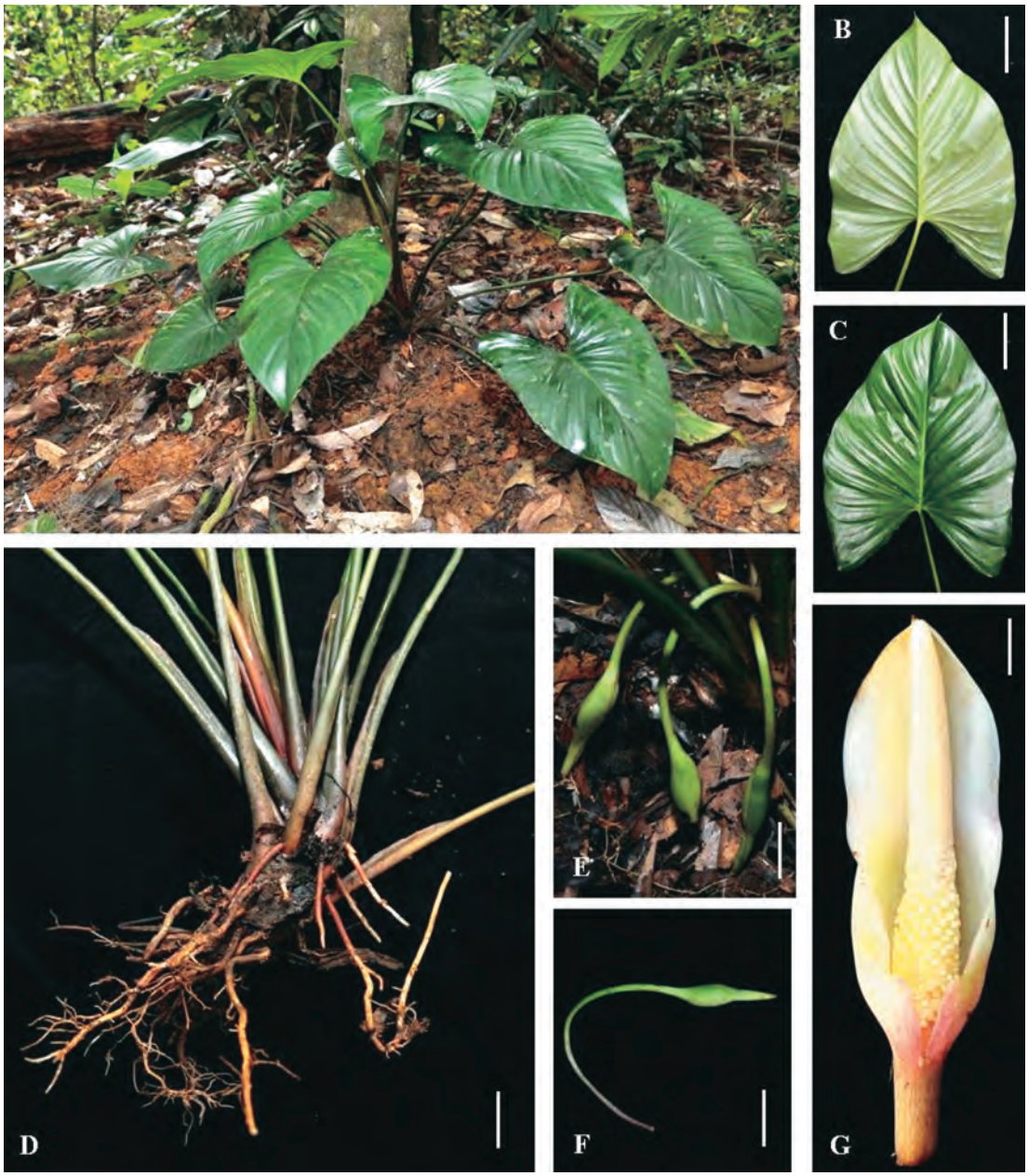

FIG. 1. *Homalomena kualakohensis* Zulhazman M., P.C. Boyce & Mashhor M. A: Plant in habitat. B: Leaf blade, abaxial surface showing the conspicuous primary lateral veins. C: Leaf blade, adaxial surface. Note the quilted nature caused by the impressed primary lateral veins. D: Conspicuous brownish red petioles. E & F: Declinate inflorescences. G: Inflorescence at late pistillate anthesis, the lower part slightly artificially opened. Note the creamy yellow colour and the with pink stripes and staining. A–G from *Zulhazman M. UMK00006*. Phogographs by Zulhazman M. Scale bar: B–C = 3 cm; D–E = ca. 5 cm; G = 1 cm.

FIG. 2. *Homalomena kualakohensis* Zulhazman M., P.C. Boyce & Mashhor M. A: Inflorescence with spathe artificially removed. B: Pistillate flower zone. Note that the interpistillar staminodes exceed the pistils, and that the enlarged end of the staminodes is mostly larger than the stigma. Note, too, the conspicuous zone of staminodes separating the pistillate and staminate flower zones. C: Detail of the staminate flower zone and interstice staminodes. A–C from *Zulhazman M. UMK00006*. Phographs by Zulhazman M. Scale bar: A = 2 cm; B–C = 1 cm.

1.2 × 1 × 1.4 mm, anthers with 2 thecae, and overtopped by a large synconnective. *Infructescences* declinate by curving of the peduncle, spathe persistent, turning green, ca. 7 cm long. *Fruits & seeds* not observed.

Ecology: Perhumid to moist lowland mixed dipterocarp forest on deep soils over granite with shallow leaf litter, 80–100 m. a.s.l, often abundant on ridges and sloping areas.

Distribution: To date *H. kualakohensis* is known only from Taman Negara Kuala Koh, where it is seemingly restricted to the Ara Trail. Taman Negara Kuala Koh is part of the much larger Taman Negara, which covers 4343 sq km and includes the states of Kelantan, Terengganu and Pahang. T.N. Kuala Koh is the only official entry point to Taman Negara in the state of Kelantan. Located at the end of an oil palm estate, T.N. Kuala Koh is situated at the confluence of Sungai Lebir and Sungai Koh. The Sungai Lebir is the main river that joins Sungai Galas to form the Sungai Kelantan at Kuala Krai.

Etymology: The epithet comes from the type and only known locality, (Kuala Koh + *ensis*).

Notes: Homalomena kualakohensis is immediately distinguished from any other *Homalomena* described from Peninsular Malaysia by the combination of constricted spathe, of which the lower half is pale yellowish and pink-flushed, the interpistillar staminodes overtopping the associate pistils, with enlarged staminode heads equalling the diameter of stigma, and the conspicuous block of staminodes separating the pistillate and staminate flower zones.

The only other described Cyrtocladon Supergroup species in Peninsular Malaysia is the peat-swamp, colonial helophytic *H. rostrata*, which had green, or less often dark red spathes, interpistillar staminodes barely overtopping the pistils, with the tip much smaller than the stigmas, and little or no staminode development separating the pistillate and staminate flower zones.

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