

Haniffia flavescens (Zingiberaceae): a new species from Peninsular Malaysia

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ABSTRACT. A new species of *Haniffia* (Zingiberaceae), *H. flavescens* Y.Y. Sam & Julius, the third in the genus, was recently discovered in southern Peninsular Malaysia. It is described and illustrated here. The fruits of *H. cyanescens* (Ridl.) Holttum var. *cyanescens* and *H. albiflora* K. Larsen & J. Mood are described here for the first time. An updated key for the genus *Haniffia* is provided.

Keywords: *Haniffia flavescens*; Johor; New species; Peninsular Malaysia; Zingiberaceae.

INTRODUCTION

Since the launch of the Flora of Peninsular Malaysia project in 2005, many field activities have been carried out to gather information for a comprehensive flora revision. Some of these trips ventured into botanically unexplored or poorly collected sites and have resulted in the discovery of new taxa and records. Here, we describe a new species, *Haniffia flavescens* Y. Y. Sam & Julius, discovered during an expedition led by the third author to the Endau Rompin National Park, Johor, Peninsular Malaysia. We also visited the type locality of *H. cyanescens* (Ridl.) Holttum var. *cyanescens* to obtain comprehensive material because previously it was only known from two collections made in the early 1900s. The collection of fresh flowers and fruits has enabled us to provide a complete description, especially of reproductive parts. Fruit characters of all the taxa are described here for the first time, except *H. cyanescens* var. *penangiana* C.K. Lim.

The genus *Haniffia* is a small and rare group of gingers. Previously, only two species had been named: *H. cyanescens* collected in 1903 in Negeri Sembilan, Peninsular Malaysia (Ridley, 1904 and 1922) and *H. albiflora* K. Larsen & J. Mood described almost a century later from Peninsular Thailand (Larsen and Mood, 2000). Subsequently, a new variety, *H. cyanescens* var. *penangiana*, was discovered at Gunung Bintang, Kedah and Penang (Lim, 2000). These few collections show the rarity of the plants and the new species *H. flavescens* is indeed an exciting find. Among Malaysian gingers, it is rare because of the small number of species in the genus and the few localities from which it is known.

At first glance, the flowers of *Haniffia* resemble those of *Scaphochlamys*, and to a certain extent those of *Boesenbergia*, *Curcuma* and *Kaempferia*. However, the leafy shoots are very distinct from any of these genera. *Haniffia* has a slender pseudostem with distichous leaflets that can almost be mistaken for a small *Zingiber*, unless one is fortunate enough to find flowers at the base of the leafy shoots, which are usually partly hidden by leaf litter. The fruits of *Haniffia* also differ in the very thick and fleshy wall versus the thin-walled capsule in the other closely related genera.

In fact, it is easy to identify members of the genus *Haniffia*, because the plant has a *Zingiber*-like leafy shoot but flowers like those of *Scaphochlamys*, *Boesenbergia*, *Curcuma* and *Kaempferia*. This unique relationship is reflected in its phylogenetic position where *Haniffia* is close to these same genera (Kress et al., 2002). However, bootstrap support was weak for uniting these genera to form a clade, with a value of only 59%. We plan to include all three species of this genus from different populations in our own phylogenetic study of the subfamily Zingiberoideae to give a clearer view of the intergeneric relationships of *Haniffia*.

NEW SPECIES

Haniffia flavescens Y. Y. Sam & Julius, sp. nov.—TYPE: MALAYSIA. Peninsular Malaysia, Johor, Endau Rompin National Park, 2 Oct 2007, *Julius, Sam, and Kueh FRI 57598* (holotype: KEP, here designated; isotype: E). Figures 1, 2A-D

Haniffiae cyanescenti (Ridl.) Holttum *similis*, sed *foliorum ligulis atropurpureis, floribus flavidis, labello apice emarginato distinguenda*.

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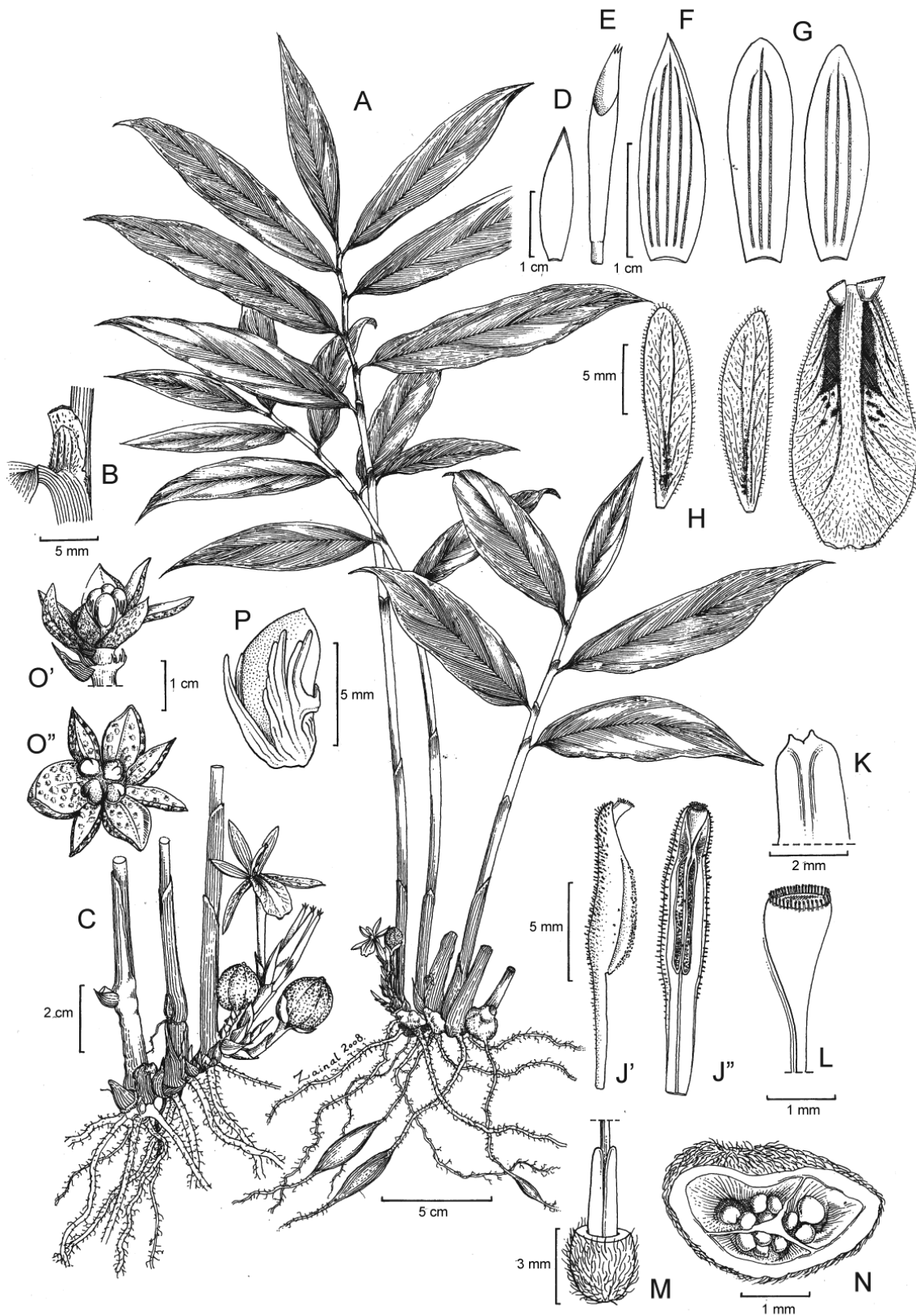


Figure 1. *Haniffia flavescens*. A, Habit; B, Leaf ligule; C, Reproductive part; D, Bract; E, Calyx; F, Dorsal corolla lobe; G, Lateral corolla lobes; H, Lateral staminodes; I, Labellum; J, Stamen and stigma, side view (J') and front view (J''); K, Anther crest; L, Stigma; M, Ovary and epigynous glands; N, Cross section of ovary; O, Open fruit, side view (O') and aerial view (O''); P, Seed with lacerated aril. (All from FRI 57598)

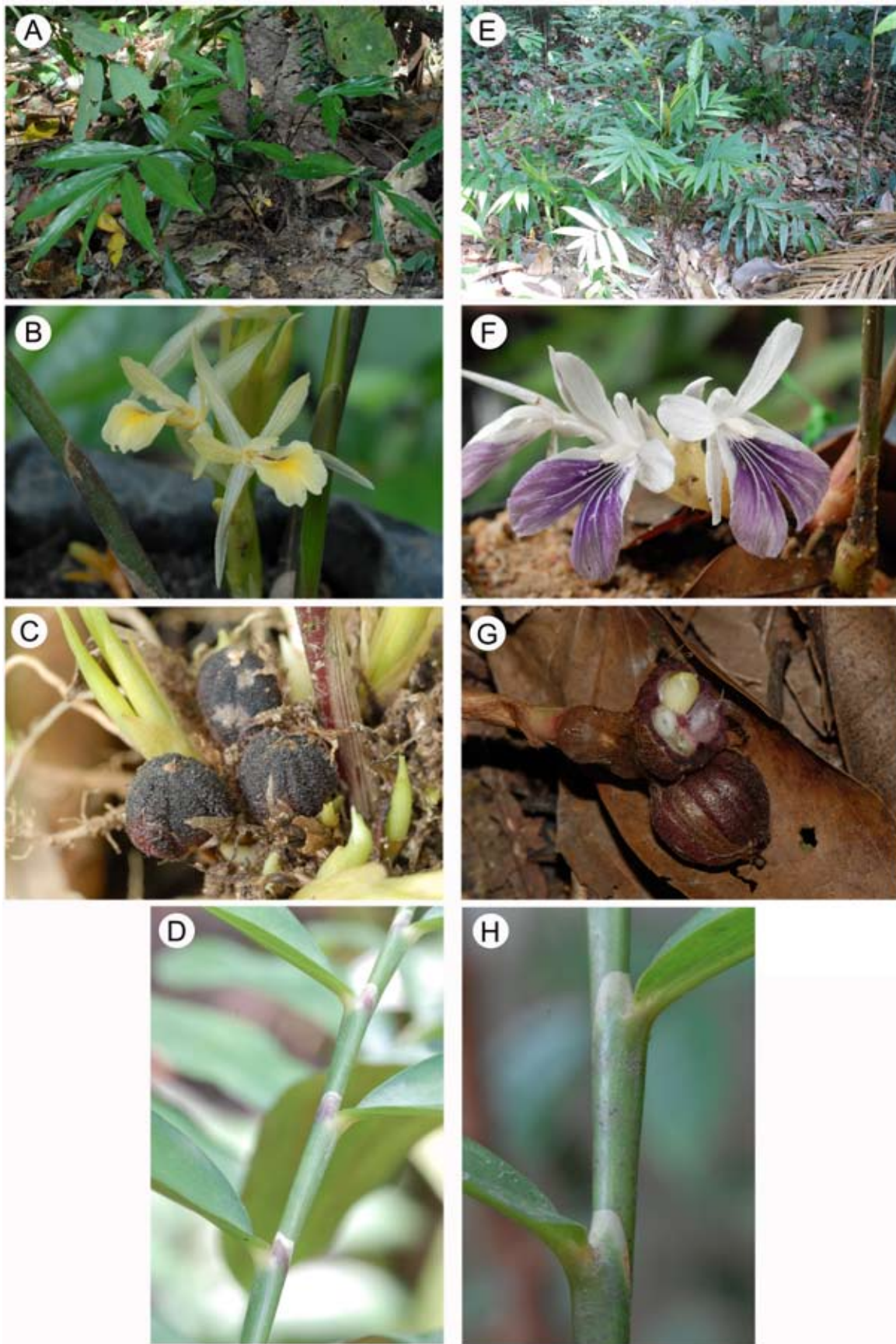


Figure 2. *Haniffia flavescens* (A-D) and *H. cyanescens* var. *cyanescens* (E-H). A, E, Habit; B, F, Inflorescence; C, G, Infructescence; D, H, Leaf ligule. (A, B, C, D, F & H by Sam Y.Y.; E & G by Saw L.G.)

Terrestrial herb, 35-100 cm tall, in clumps, 3-13 shoots per clump, shoots closely spaced; rhizomes ca. 6 mm in diameter; roots fibrous, growing deep in the ground, tuberous, to 1 cm diameter, outside pale cream, inside white. *Bladeless sheath* brownish purple, glabrous, membranous on apex and margin. *Leaves* 4-7 pairs per shoot, sessile; ligule dark purple, emarginate, 5-6 mm long, sparsely hairy, hairs long white, apex membranous; lamina green, purplish beneath when mature, narrowly elliptic to lanceolate, 12.5-17.5 × 2.8-4.4 cm, base cuneate, apex acuminate, acumen 6-20 mm long, glabrous on both surfaces, sometimes sparsely hairy on the midrib below. *Inflorescences* borne at base of leafy shoot, 5.6-7 cm long, 3(-5) flowers, peduncle to 2.4 cm long. *Floral bracts* whitish, boat-shaped, 24-32 × 6-10 mm, membranous, glabrous except the tip with few hairs. *Calyx* greenish, translucent, tubular, 36-70 mm long, mouth slanting, apex tridentate, hairy at tip. *Corolla tube* 36-70 mm long, hairy outside, covered with glandular hairs inside; dorsal corolla lobe pale yellow, elliptic, 20-28 × ca. 6 mm, membranous; lateral corolla lobes pale yellow, elliptic, 20-27 × 4-6 mm. *Lateral staminodes* pale yellow, sometimes with crimson line at

the base, oblanceolate, 16-18 × 4-5 mm, both surfaces covered with dense, white glandular hairs. *Labellum* pale yellow with a golden yellow median band, deep crimson spots at both sides, obovate, 21-25 × 10-14 mm, swollen at base where adnate to staminodes, upper surface covered with dense, white glandular hairs, lower surface glabrous, apex emarginate, curved downward. *Stamen* covered with dense, glandular hairs; filament 5-6 mm long; anther 6-10 mm long; anther crest 2-2.5 mm long, apex bidentate. *Style* 46-54 mm long, glabrous; stigma cup-shaped, ca. 1.8 mm long, mouth ciliate. *Ovary* 3-locular, ovules many, densely hairy. *Epigynous glands* yellow, 2, free, linear, 2-2.4 mm long. *Fruit* a dehiscent capsule, one per infructescence, dark purple when ripe, globose, ca. 2 × 2 cm, ridged, surface rough, glabrescent, splitting longitudinally into 7 valves, valves fleshy, usually 2-locules well developed, sometimes 3. *Seeds* brown turning greyish-black, ellipsoid-obovoid, 6-7 × 3-4 mm, only 1-3 well developed, aril thick and white when fresh, thin, straw-yellow and shiny when dried.

Additional specimens examined. **MALAYSIA.** Peninsular Malaysia, Johor, Endau Rompin National Park, 27

Table 1. Morphological comparison of *Haniffia flavescens*, *H. cyanescens* and *H. albiflora*.

Character	<i>H. flavescens</i> (Figures 1, 2A-D)	<i>H. cyanescens</i> (Holtum, 1950; Lim, 2000; current observations; Figure 2E-H)	<i>H. albiflora</i> (Larsen and Mood, 2000; current observations)
Largest leaf lamina (cm)	12.5-17.5 × 2.8-4.4	18.7-21 × 3.8-4.9	10-14 × 2-3.5
Ligule			
Length (mm)	5-6	3-4	ca. 3
Indumentum	Sparsely hairy, long white hairs	Sparsely pubescent or rarely glabrous	Hairy, long straight hairs
Color	Dark purple	Green	Unknown
No. of flowers per inflorescence	3(-5)	5-7	2-3
Flower color (except labellum)	Pale yellow	White	White
Labellum			
Shape	Obovate, apex emarginate	Obcordate, apex bilobed	Obovate, apex bilobed
Color	Pale yellow with golden yellow median band; deep crimson spots at both sides	Dark blue-violet with white veins or white with purple veins	White with yellow blotch at base
Lateral staminodes	Oblanceolate	Obovate to oblanceolate or lanceolate	Elliptic
Anther crest			
Shape	Bidentate	Rounded	Obtuse
Indumentum	Margin without hairs	Margin with few hairs	Unknown
Fruit			
Color	Dark purple	Greyish dark purple	Unknown
Surface	Surface rough and dull	Surface smooth and shiny	
Indumentum	Sparsely hairy	Hairy	Hairy at the base

Aug 2007, Chew & Kueh FRI 53707 (HAST, KEP).

Ecology. Primary lowland and hill forest, on slopes, flat and undulating terrain, in shaded or slightly exposed areas, 239–394 m altitude. Flowering and fruiting in April to June and August to October respectively.

Distribution. Known only from the type locality.

Etymology. This new species was named after the yellow flower.

Morphological comparisons. *Haniffia flavescens* is very similar to *H. cyanescens* especially in the vegetative parts and it is difficult to distinguish the two if flowers are not available. Generally, *H. flavescens* has smaller leaves than *H. cyanescens* (12.5–17.5 × 2.8–4.4 cm vs. 18.7–21 × 3.8–4.9 cm) and it also differs in its dark purple ligule covered with long, white hairs vs. sparsely pubescent or rarely glabrous green ligules. In addition, *H. flavescens* differs from *H. cyanescens* in characters of the flowering shoot. *Haniffia flavescens* has very attractive pale yellow flowers with 3(–5) in each inflorescence. The labellum has a golden yellow median band with deep crimson spots at the sides and a swelling at the base where it is adnate to the staminodes. The inflorescence of *H. cyanescens* usually has 5–7 white flowers with a dark blue-violet labellum and white veins or a white labellum lined with purple veins (see Table 1).

Haniffia albiflora recorded from Peninsular Thailand

is easily recognized by its white flowers with yellow blotch at the base of labellum and the elliptic staminodes. The labellum is consistently bilobed (John Mood, per. comm.) and not emarginate or bilobed as stated in Larsen and Mood (2000). However, the lobes are sometimes overlapped and mistaken as emarginate. The presence of dense, stiff hairs just below the ligules in *H. albiflora* distinguishes this species from *H. cyanescens* and *H. flavescens*. Based on Kiah 24254 (KEP), the fruit is globose and glabrous except for the dense hairs at the base. The seeds are similar to the other two species, black and covered with thin, straw-yellow and shiny aril on the lower half when dried (see Table 1).

When comparisons are made between the three species in the genus, we found that *H. flavescens* is closer to *H. albiflora* than to *H. cyanescens*. Both have similar vegetative characters, such as the size and hairiness of the ligule, and the shape and size of the lamina. The distinguishing character once again lies on the flowers. *H. albiflora* has elliptic staminodes, white flowers with bilobed labellum while *H. flavescens* has oblanceolate staminodes, pale yellow flowers, and emarginate labellum. The differences between *H. albiflora*, *H. flavescens* and *H. cyanescens* are highlighted in Table 1.

With the newly described *H. flavescens* and additional information on other *Haniffia* species, we now provide an updated key for identification on the *Haniffia* species.

Key to *Haniffia* species

- 1a. Corolla lobes and staminodes pale yellow; labellum pale yellow with golden yellow median band, apex emarginate..... *H. flavescens*
- 1b. Corolla lobes and staminodes white; labellum white, white with purple veins or dark blue-violet; apex bilobed 2
- 2a. Lamina 10–14 × 2–3.5 cm; ligule with long white hairs; flowers 2–3 in each inflorescence *H. albiflora*
- 2b. Lamina 17–21 × 3–4.9 cm; ligule glabrous or sparsely pubescent; flowers 5–7 in each inflorescence 3
- 3a. Labellum dark blue-violet with white veins; lateral staminodes obovate to oblanceolate *H. cyanescens* var. *cyanescens*
- 3b. Labellum white with violet veins; lateral staminodes lanceolate *H. cyanescens* var. *penangiana*

Specimens examined. *Haniffia albiflora*: **THAILAND.** Peninsular Thailand, Bukit, 7 Jun 1930, Kiah 24254 (KEP, SING); Narathiwat Province, Chatwarin Falls, 15 Aug 1995, Larsen et al. 45605 (BKF). *Haniffia cyanescens* var. *cyanescens*: **MALAYSIA.** Negeri Sembilan, Bukit Tangga, 1903, W. G. Napier s.n. (K); Dec 1920, Ridley 13124 (SING); 24 Jan 2008, Julius et al. FRI 56061 (KEP); 20 Feb 2008, Sam & Apok FRI 50297 (KEP); 10 Apr 2008, Rafidah FRI 59838 (KEP). *Haniffia cyanescens* var. *penangiana*: **MALAYSIA.** Kedah, Gunung Bintang, 18 Apr 1928, Haniff SFN 21086; Gunung Bintang Forest Reserve, 1968, Sidek S 272 (SING); Penang, 2000, C.K. Lim L 4292 (KEP, SING).

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馬來半島薑科新種植物：*Haniffia flavescens*

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我們最近在馬來半島南部發現薑科一新種植物，*Haniffia flavescens* Y.Y. Sam & Julius，這是此屬植物第三個物種。本文發表新種的性狀描述，並提供線繪圖及彩色照片以資辨識；此外並首次描述同屬的 *H. cyanescens* (Ridl.) Holttum var. *cyanescens* 及 *H. albiflora* K. Larsen & J. Mood 的果實特徵，且製作 *Haniffia* 屬植物的檢索表。

關鍵詞：*Haniffia flavescens*；柔佛州；新種；馬來半島；薑科植物。