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A new species of the genus *Peristylus* (Orchidaceae) from southern Thailand

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ABSTRACT. A new species of the genus *Peristylus* Blume is described from Phangnga Province in Peninsular Thailand. On account of its small size, slender habit, lip shape and spur shape the species is very distinct from any other species found in Thailand and neighbouring countries. A morphological description, short notes on the distribution, ecology, phenology and conservation as well as illustrations of the species are provided.

KEY WORDS: Orchidaceae, *Peristylus*, new species, Thailand.

INTRODUCTION

The Orchid Flora of Thailand is rather well known compared with some of the surrounding countries, but discoveries of new distribution records or entirely new species continue to be made, indicating that our knowledge of the Thai orchids is far from complete. The Thai species of the genus *Peristylus* Blume have recently benefitted from taxonomic studies (Seidenfaden, 1977; Kurzweil, 2010, 2011). During floristic inventory work plants belonging to this genus were found in Phangnga Province in Peninsular Thailand which differ strikingly from all other species known in mainland SE Asia. They are obviously the representatives of a new species which is described below.

Peristylus belongs to the primarily terrestrial orchid subfamily Orchidoideae (Pridgeon *et al.*, 2001). The genus comprises ca 70–75 species, which are distributed in the Asia-Pacific region from India as far east as New Guinea, northern Australia and the islands of the south-western Pacific Ocean. *Peristylus* is characterised by having few cauline or less often basal leaves and terminal inflorescences with few to many small flowers with greenish, whitish or yellowish colours. The lip is spurred and mostly 3-lobed with short triangular or long linear side lobes; rarely the lobing is very shallow, and a few species have a more or less entire lip. The spur is normally shorter than the ovary and can be cylindric or globular. Differences from the related genus *Habenaria* Willd. are the convex and often cushion-like stigmas which are adnate to the lip base.

Peristylus minimus Kurzweil & Tripetch, **sp. nov.**

Differs from other species in the region in its small plant size and slender habit, the shallowly three-lobed lip and the clavate and deeply bifid spur. Type: Thailand, Phangnga Province, Sa Nang Manora Forest Park, on limestone rock, 490 m, 15 Aug. 2014, *Tripetch 140875* (holotype **BKF** [spirit]!). Figs. 1–2.

Plants 3–10 cm tall, erect, glabrous throughout, underground organs not seen. Cataphylls 2, ovate-lanceolate, acute or subacute, enveloping the stem up to 7 mm high, in spirit material much paler than the leaves and presumably white in fresh material. *Leaves* 1 or 2, ovate-lanceolate, acute or subacute, 3–7-veined with the centre vein rather pronounced, 16–22 × 8–11.8 mm, partly or entirely adpressed to the substrate, basally sheathing for about 6 mm, somewhat fleshy, margins entire. *Inflorescences* lax, narrowly cylindric, (1–)2–11-flowered; peduncle wiry, ca 0.6 mm in diameter, sterile bracts 0 or 1, if present ca 2.3 mm long; rachis 2–9 cm long; floral

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bracts triangular, attenuate, acute, 1-veined, the lower ones 3.4–4 × ca 1.5 mm. *Flowers* 4.2–5 mm in diameter (measured between the tips of the lateral sepal); resupinate, though some flowers incompletely so; sepals and lip spur greenish yellow, petals and lip lemon-yellow. *Ovary* plus pedicel about 5–6 mm long and 1.4–1.8 mm wide, neck slightly narrowed. *Median sepal* erect, forming a hood together with the petals, elliptic-lanceolate, apex acute or obtuse, 3-veined, navicular, 3.2–3.3 × 1.4–1.7 mm; lateral sepals horizontally spreading and with distal parts slightly decurved, elliptic-lanceolate, acute or obtuse, with a pronounced midvein and one weak lateral vein, 3–3.3 × 1.2–1.45 mm, basally united with the petals. *Petals* elliptic-lanceolate, acute or obtuse, 3-veined, ca 3.3 × 1.1–1.7 mm. *Lip* divided into hypochile and epichile by a prominent 0.7–0.8 mm high transversal ridge at the base; hypochile concave; epichile flat, spreading, shallowly 3-lobed in the upper half, 2.65–2.8 × 1.7–2 mm; midlobe suborbicular, obtuse, 1–1.3 × 0.8–1 mm; side lobes suborbicular, broadly obtuse, 0.5–0.7 × 1–1.1 mm; spur 2.6–2.8 mm long and 1.1–1.35 mm wide when seen from the front, the proximal ca 1.2 mm cylindric and strongly clavate above, apex deeply bifid. *Column* ca 1.2 mm long; anther ca 1 mm long, without narrow basal thecae extensions; stigmas 2, separate, clavate, ca 1 mm long, adnate to the lip base.

Thailand.— PENINSULAR: Phangnga [Sa Nang Manora Forest Park, on limestone rock, 490 m, 15 Aug. 2014, *Tripetch 140875* (**BKF** [spirit]!)].

Distribution.— Endemic to Thailand. The species is currently only known from the type locality in Phangnga Province.

Ecology and phenology.— The plants inhabit limestone rocks at an elevation of about 490 m. They were found growing amongst mosses and lichens (Figs. 1A, 1D) or directly on bare rock (Fig. 1C), presumably in both cases with their underground organs in rock crevices. Flowering observed in August.

Conservation.— About 10 plants were seen at the type locality. It is assumed that the species may previously have been overlooked elsewhere due to its small size, and that it may in fact be more widespread. Its conservation status is consequently assessed as Data Deficient.

Etymology.— The species is named '*minimus*', alluding to its small size.

Notes.— On account of the lip which is clearly divided into hypochile and epichile by a pronounced transversal ridge and the rather long cushion-like stigmas adnate to the lip base the new species is placed in the genus *Peristylus*. Due to its very small size, the slender habit, the shallowly 3-lobed lip and the clavate and strongly bifid lip spur the new species can hardly be mistaken for any other in the region (Fig. 2): other *Peristylus* species in Thailand and the surrounding countries are slender to robust plants (7–)20–50(–100) cm tall with cauline or less often basal leaves; their lips have mostly triangular tooth-like, oblong or thread-like linear side lobes that are longer or shorter than the mid-lobe; the spur is globular, elongate-globular or less commonly cylindric (Seidenfaden, 1977, 1992; Jayaweera, 1981; Comber, 1990, 2001; Seidenfaden & Wood, 1992; Pearce & Cribb, 2002; Kurzweil, 2010, 2011; Averyanov, 2010; Chen *et al.*, 2009).

Unlobed to almost unlobed and ± ligulate, pyriform or flabelliform lips without prominent side lobes are found in a few species in the region, namely the Chinese species *Peristylus forrestii* (Schltr.) K.Y. Lang; the Thai species *P. kerrii* Seidenf. and *P. carnosipetalus* Kurzweil; the Sri Lankan species *P. brevilobus* Thwaites; and the more widespread species *P. plantagineus* (Lindl.) Lindl. *Peristylus balakrishnanii* Karthig., Sumathi & Jayanthi from the Andaman Islands has a very shallowly 3-lobed lip with obscure orbicular side lobes. However, all of these species differ in their taller plant size, in their foliage and in the spur shape. Unlobed or almost unlobed lips are also found in three species that were previously accepted in the genus *Peristylus* (*P. forceps* Finet, *P. superanthus* J.J. Wood, *P. nematocaulon* (Hook.f.) Banerji & P. Pradhan), but these have recently been transferred to the genera *Herminium* and *Platanthera* on the basis of molecular studies (Jin *et al.*, 2014; Raskoti *et al.*, 2015).

In addition, an unlobed lip is also found in the Vietnamese species *Peristylus chapaensis* (Gagnep.) Seidenf., which is apparently only known from the type collection. It shares a similar habit with the new species as the plant is ca 10 cm tall and has

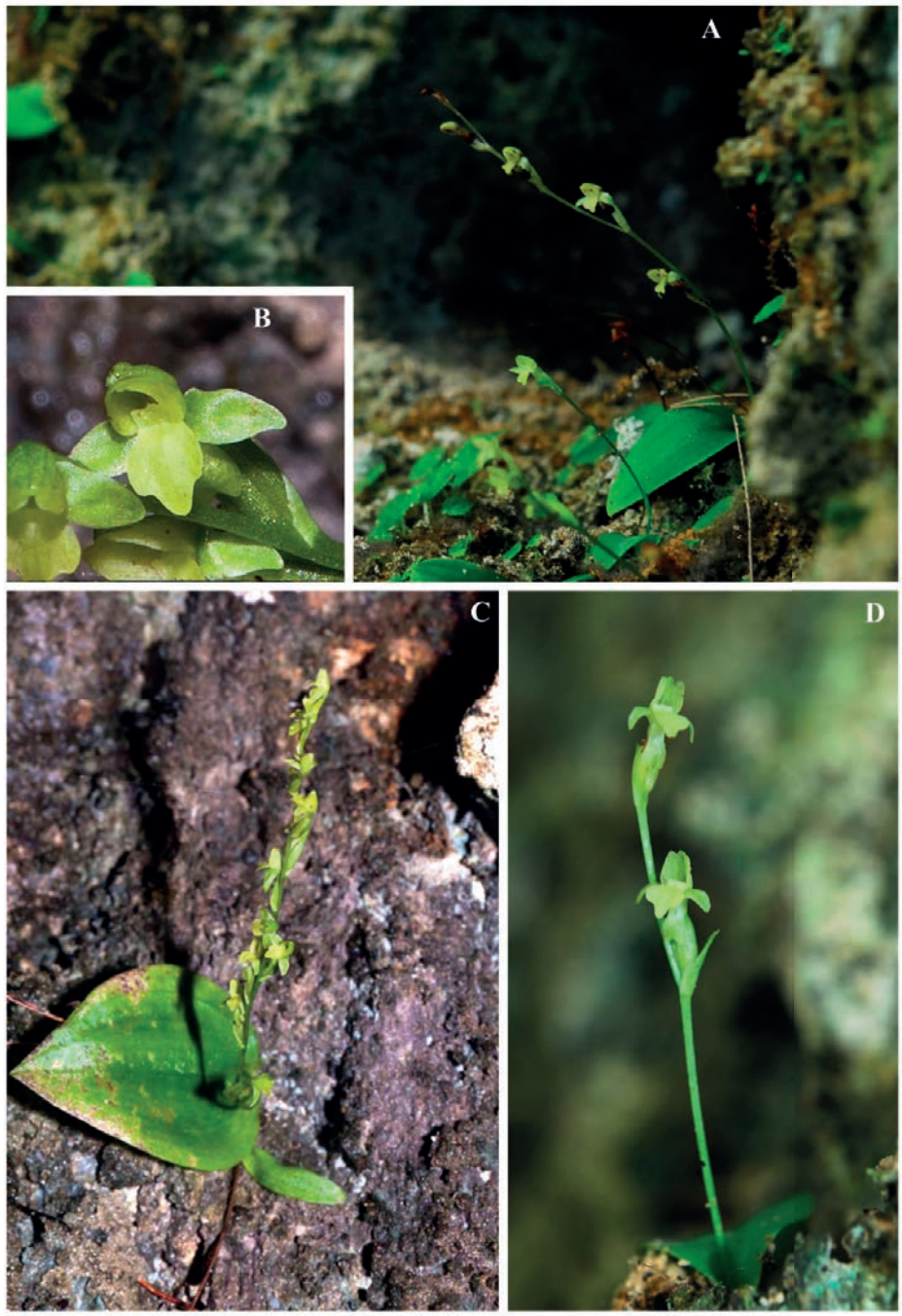

Figure 1. *Peristylus minimus* Kurzweil & Tripetch in its natural habitat in Phangnga Province, southern Thailand. A. Plant; B. Close-up of flower; C–D. Different specimens. Photos: A, D by Petch Tripetch, B–C by Thana-Anek.

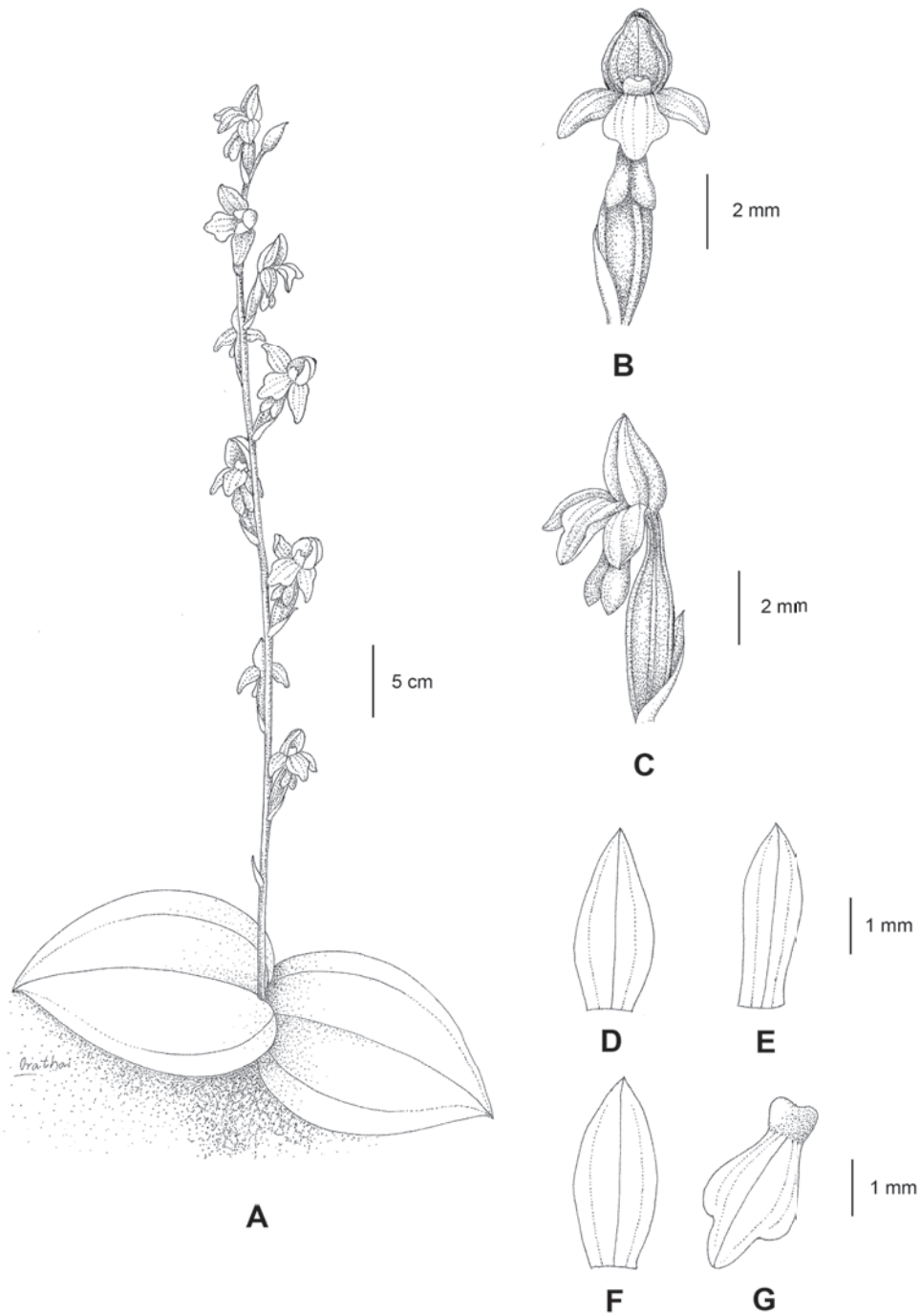

Figure 2. *Peristylus minimus* Kurzweil & Tripetch. A. Plant; B–C. Flower; D. Median sepal; E. Petal; F. Lateral sepal; G. Lip. Drawn from alcohol material by Mrs Orathai Kerdkaew.

two small basal leaves 1–2 cm long (Gagnepain, 1931: 67; Seidenfaden, 1977: 63, fig. 34, 1992: 52, fig. 26; Averyanov, 2010: 26, fig. 13a–c). However, it clearly differs from the new species in having white flowers; a ligulate lip without any indication of lobing and without a transversal ridge at the base; and a cylindric spur with unlobed apex. According to Averyanov (2010), *P. chapaensis* is a questionable species, which may be an abnormal peloric form of *P. lacertifer* (Lindl.) J.J. Sm.

A prominent transversal ridge dividing the lip into a saccate hypochile and a flat epichile is in the Thai *Peristylus* species that are known so far always associated with linear side lobes which are usually longer than the lip mid-lobe (Seidenfaden, 1977; Kurzweil, 2010, 2011). The cavity behind the ridge functions to give protection to the rather long stigmas (Seidenfaden, 1977). The new species is therefore interesting in that a prominent transversal ridge is found in a species which has a shallowly 3-lobed lip with obscure side lobes.

The shape of the lip spur of the new species is characteristic as it is apically strongly clavate and prominently bifid. Prominently clavate and bifid lip spurs are also found in *Peristylus monticola* (Ridl.) Seidenf. (illustrated in Seidenfaden, 1977: 36, fig. 13; Seidenfaden & Wood, 1992: 104, fig. 42e–f, pl. 3b; Averyanov, 2010: 36, fig. 18d) and *P. calcaratus* (Rolfe) S.Y. Hu (illustrated in Seidenfaden, 1992: 46, fig. 22c). Both of these differ from the new species in being much taller plants with deeply 3-lobed lips with long and linear side lobes.

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