

## *Rhynchoglossum ausculum* (Gesneriaceae), a new species from South-Western Thailand

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### ABSTRACT

The new species *Rhynchoglossum ausculum* from South-Western Thailand is described and illustrated. An emended key to the Thai species of *Rhynchoglossum* is provided.

KEYWORDS: conservation, endemic, personate flower, *Rhynchoglossum obliquum*.

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### INTRODUCTION

*Rhynchoglossum* Blume is a small genus in the family Gesneriaceae distributed in tropical Asia and America. Several of its 13 species are narrowly endemic, as reported by Burtt (1962), Weber (2004), Kartonegoro (2013), Pattharahirantricin (2014) and POWO (2021). In Thailand, the genus has been recently revised and included two new and endemic species, *Rhynchoglossum mirabilis* Patthar. and *R. saccatum* Patthar., and one widespread and common species, *R. obliquum* Blume (Pattharahirantricin, 2014). The genus was also revised for Malesia with four endemic species in addition to *Rhynchoglossum obliquum* (Kartonegoro, 2013). The distributions of all species of *Rhynchoglossum* can be seen in Table 1.

The distinctive characteristics of the genus are the oblique leaves, unilateral racemes, and bilabiate corolla. In Thailand, a personate flower (where the throat of the bilabiate corolla is nearly closed) and two fertile stamens are found in *Rhynchoglossum obliquum*, while the other two species, both of which are endemic, have a ringent flower (bilabiate corolla with the lips widely separated) and four fertile stamens. The new species described here combines the above characteristics, having personate flowers and four fertile stamens, which do not match with any other known species.

### NEW SPECIES

***Rhynchoglossum ausculum* Patthar. & Poopath, sp. nov.**

Similar to *Rhynchoglossum obliquum* in its personate flower and white to pale purple corolla, but differs by having 4 fertile stamens, the lower lip having 2 bluish purple to dark blue patches, the ventral surface of the corolla tube having a pale yellow stripe from the middle of throat downwards, and in having several tufts of hairs in the tube (vs 2 fertile and 2 sterile stamens, only a white to yellow spot at the centre of the lower lip, and without tufts of hairs inside). It is also similar to *Rhynchoglossum mirabilis* and *R. saccatum* in its 4 fertile stamens, but differs by having the mouth of the corolla tube closed, the tube itself dilated and dorsoventrally compressed, and the lower and upper lips nearly equal (vs ringent corolla, tube dilated and not dorsoventrally compressed, lower lip longer than upper lip). Type. Thailand, Phetchaburi, Khiriwong Temple, Khao E-bit, ca 35 m elev., 5 Oct. 2020, *M. Poopath, P. Karaket & N. Suphuntee* 2588 (holotype **BKF** [225519!]; isotypes **K!**, **SING!**). Figs. 1–3.

Lithophytic herb, up to 60 cm tall; stem stout, succulent, glabrous. *Leaves* asymmetric; petioles 1–5 cm long, puberulent; lamina membranous, ovate or oblong, 4–14 × 2–5(–7.5) cm, base oblique, cordate

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or obtuse, margin entire, apex tapering acuminate to caudate, 1–1.5 cm long; puberulent at base or glabrous on both surfaces; secondary veins 9–16 on each side. *Inflorescence* a unilateral raceme, axillary or terminal, sometimes arising along the petioles, (1.2–)5–12 cm long, with (10–)15–35 flowers; flower buds green; peduncle (0.5–)1–3 cm long, puberulent or glabrous. *Flowers* 10–15 mm long; bracteoles linear, arising from the base of the pedicel, 0.5–1 mm long; pedicels puberulent, 2–3 mm long. *Calyx* campanulate, 3–4 mm long, outside glabrous but with the bases of the hairs on the inside of calyx marked on the outside, or similar punctate dots outside, pubescent inside; lobes 5, triangular 1–2 mm long, apex acute, pubescent inside. *Corolla* whitish, lobe of lower lip with 2 bluish purple to dark blue patches and a pale yellow stripe from the middle of throat downwards, and with several tufts of hairs inside; tube dilated and dorsoventrally compressed, gradually widening to the closed mouth,

mouth ca 3 mm in diam.; upper lip undulate, erect, glabrous, with reflexed lobes, ca 0.5 mm long; lower lip appressed against the upper lip closing the corolla mouth, ca 7 mm long, weakly 3-lobed. *Stamens* 4; 2 adnate on the ventral surface, ca 5.2 mm long, the other 2 adnate to the dorsal surface ca 4.2 mm long; filaments glabrous; anthers whitish, oblong, ca 1 mm long, coherent in each pair; pollen spheroidal, tricolpate, with microreticulate sculpturing, 10–12 µm diam. *Disc* annular. *Ovary* deltoid or ovoid, ca 2 mm long; ± longitudinally ridged; style ca 6 mm long, sparsely puberulous at base; stigma dilated, often slightly 2-lobed. *Capsule* ovoid, 3–5 mm long, enclosed by the calyx, glabrous; style up to 6 mm long, persistent, puberulent at base. *Seeds* ellipsoid, 220–260 × 80–110 µm, dark brown, surface tessellate with granules.

Thailand.— SOUTH-WESTERN: Ratchaburi [Khao Ngu Park, Cham Cave, ca 40 m elev., 7 Oct.

Table 1. List of the species *Rhynchoglossum* (Burt (1962), Weber (2004), Kartonegoro (2013), Pattharahirantricin (2014) and POWO (2021)).

Botanical names	no. of fertile stamens		Flower	Distribution
	2 fertile stamens	4 fertile stamens		
<i>Rhynchoglossum ampliatum</i> (C.B.Clarke) B.L.Burt		/	personate	India (Arunachal Pradesh, Assam)
<i>R. ausculum</i> Patthar.& Poopath		/	personate	Thailand (SW)
<i>R. azureum</i> (Schltdl.) B.L.Burt		/	personate	S America & N America (Mexico to Peru)
<i>R. borneense</i> Merr.		/	personate	Borneo (Sabah & E Kalimantan)
<i>R. capsulare</i> Ohwi ex Kartn.	/		personate	Sulawesi
<i>R. gardneri</i> W.L.Theob. & Grupe		/	personate	Sri Lanka
<i>R. klugoides</i> C.B.Clarke	/		personate	Philippines to Maluku (Ceram)
<i>R. lazulinum</i> A.S.Rao & J.Joseph		/	personate	India (NE)
<i>R. mirabilis</i> Patthar.		/	ringent	Thailand (N, SW & PEN)
<i>R. notonianum</i> (Wall.) B.L.Burt		/	personate	S India & Sri Lanka
<i>R. obliquum</i> Blume	/		personate	Tropical & subtropical Asia (NE India, Nepal, Bangladesh, S and SW China, Taiwan, Myanmar, Thailand, Cambodia, Laos, Vietnam, Peninsular Malaysia, Sumatra, Borneo, Java, Lesser Sunda Is., Philippines, Sulawesi, Maluku, New Guinea, Bismarck Archipelago)
<i>R. omeiense</i> W.T.Wang		/	personate	China (Sichuan)
<i>R. saccatum</i> Patthar.		/	ringent	Thailand (N)
<i>R. spumosum</i> Elmer	/		personate	Philippines (Mindanao, Negros)

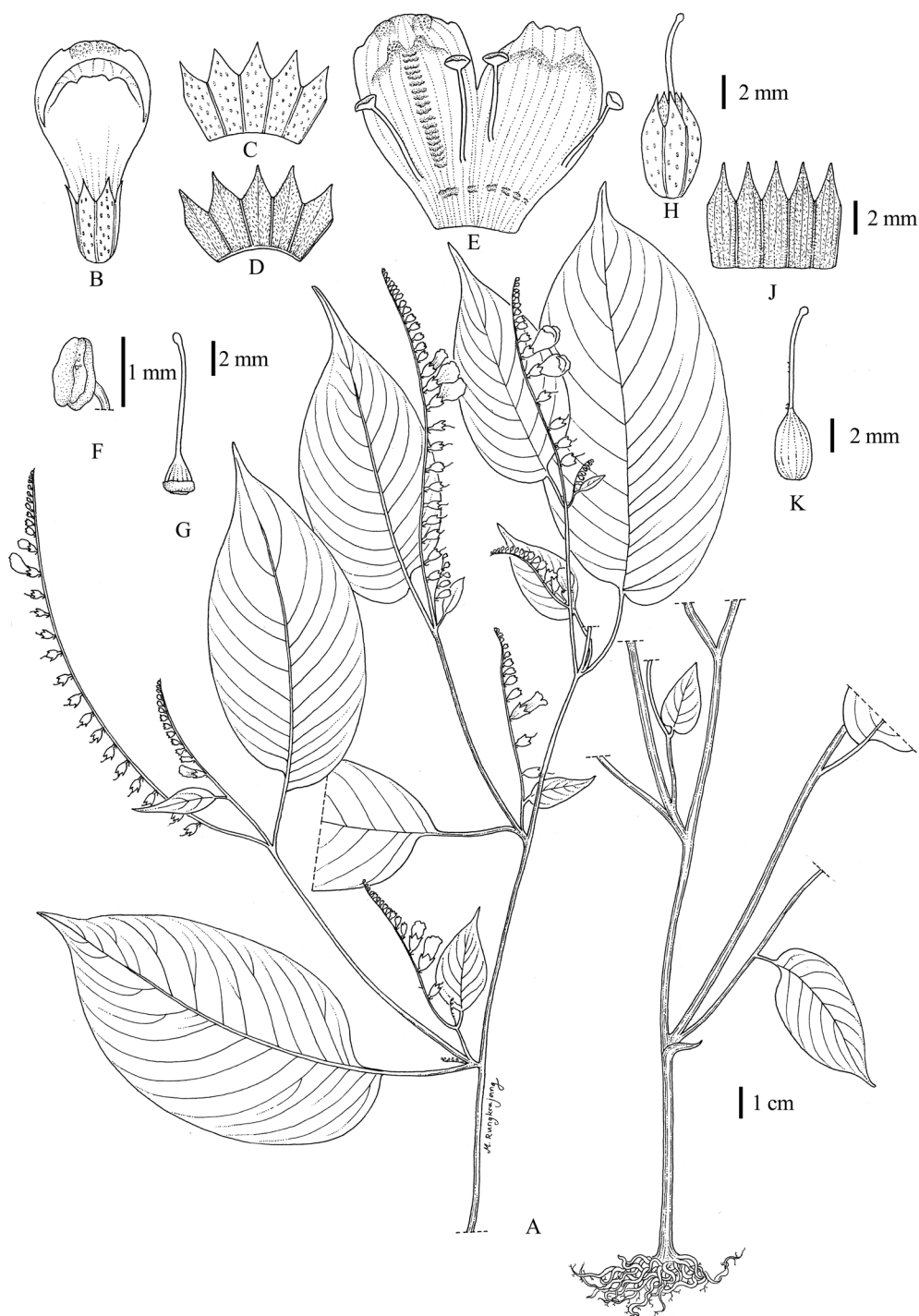


Figure 1. *Rhynchoglossum ausculum* Patthar. & Poopath: A. habit; B. flower; C. calyx outside shown marked of the base of hairs from inside of calyx; D. calyx, inside showing pubescent hairs; E. opened flower; F. stamen; G. pistil; H. capsule with calyx and style persistent; J. opened calyx of capsule; K. capsule with style persistent. All from Poopath *et al.* 2588 (BKF). Drawn by Mahsarahka Rungkrajang.



Figure 2. *Rhynchoglossum ausculum* Patthar. & Poopath: A. habit; B. flowers; C. opened flower, with ventral part of corolla tube removed; D. ventral part of corolla tube; E. capsule. Photos by Manop Poopath.



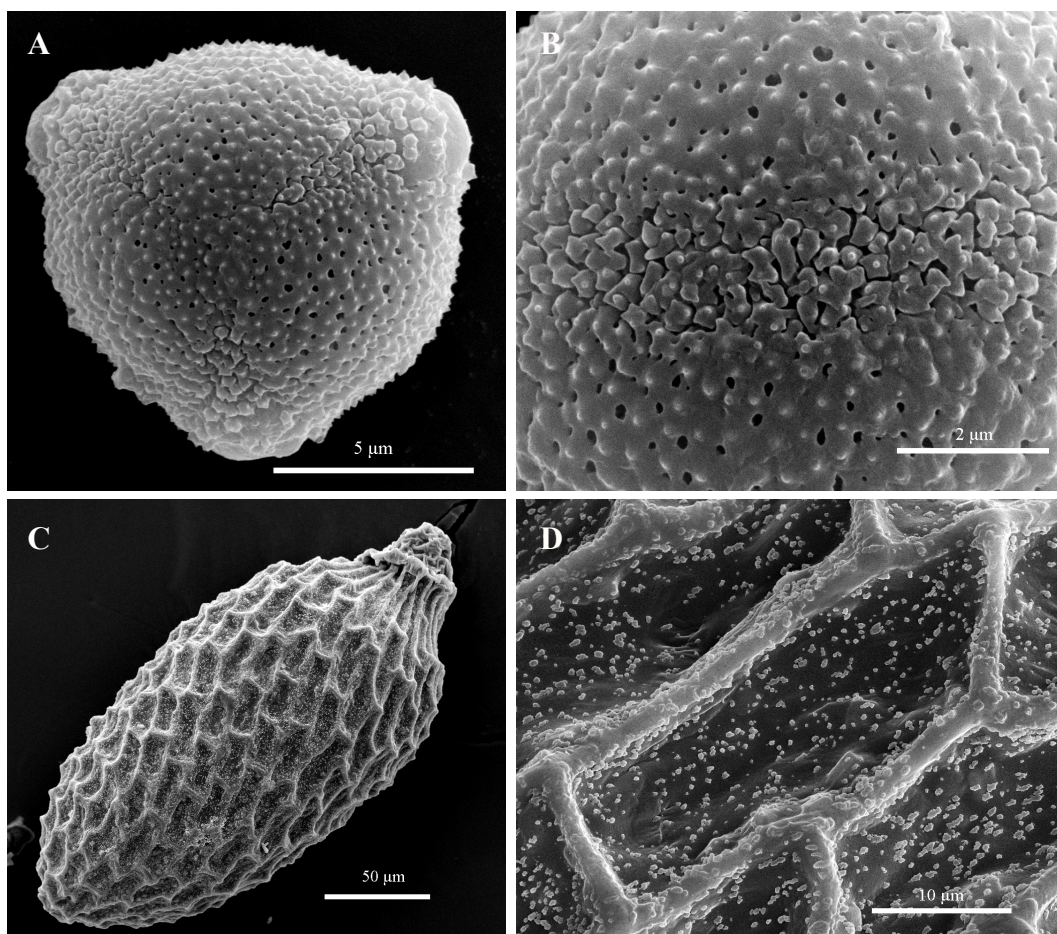


Figure 3. *Rhynchoglossum ausculum* Patthar. & Poopath: A–B. pollen and sculpturing; C–D. seed and texture. All from *Poopath et al.* 2588 (BKF).

2020, *Poopath et al.* 2600 (BKF, K)], Phetchaburi [Bo Cave, Khao E-bit, ca 60 m elev., 5 Oct. 2020, *Poopath et al.* 2579 (BKF); Khiriwong Temple, Khao E-bit, ca 35 m elev., 5 Oct. 2020, *Poopath et al.* 2588 (BKF, K, SING); Khao Yoi Temple, Phra Si Arn Cave, 13°14'8"N 99°49'36"E, 13 Nov. 2020, *Poopath* 2606 (BKF, K, SING)].

Distribution.— Endemic to Thailand

Ecology.— Shaded areas on limestone, mixed deciduous forest, 30–60 m elevation. Flowering and fruiting in October–November.

Etymology.— The specific epithet ‘*ausculum*’ refers to the appearance of the flower being like that

of a human mouth, as the upper and lower lips are subequal.

Proposed IUCN Conservation Assessment.— Endangered (EN B1ab(iii), B2ab(iii)) (IUCN 2019). From the known localities in South-Western Thailand the Extent of Occurrence (EOO) is less than 120 km<sup>2</sup> and the Area of Occupancy (AOO) is about 16 km<sup>2</sup> at four localities. The populations are fragmented on limestone, not within protected areas, and are subject to human disturbance and tourism.

Vernacular.— Cho sai sila (ช่อสายติลา) (suggested here).

EMENDED KEY TO THE THAI SPECIES OF *RHYNCHOGLOSSUM*

1. Stamens 2; corolla tube without tufts of hairs inside.— Throughout the country **R. obliquum**
1. Stamens 4; corolla tube with several tufts of hairs inside.— N, SW & PEN
2. Corolla with the mouth nearly closed; tube dilated and dorsoventrally compressed; lower and upper lips nearly equal.— SW **R. ausculum**
2. Corolla with the mouth opened; tube  $\pm$  dilated, dorsoventrally not appressed; lower lips longer than the upper lips
3. Inflorescence peduncle swollen at base; corolla 0.8–1.2 cm long; stigma dilated, slightly 2-lobed at top.— N **R. saccatum**
3. Inflorescence peduncle not swollen at base; corolla 0.5–0.7 cm long; stigma minute, obliquely elongated.— N, SW & PEN **R. mirabilis**

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