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## *Aerides phongii* (Orchidaceae), a new species from Southern Vietnam

### *Aerides phongii* (Orchidaceae) – новый вид из Южного Вьетнама

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**Ключевые слова:** *Aerides phongii*, Orchidaceae, биоразнообразие, новый вид, Вьетнам, охрана природы.

**Summary.** The paper provides illustrated description of a new orchid species, *Aerides phongii*, discovered in heavily disturbed primary seasonal broad-leaved woodland of southern Vietnam. Terete subulate leaves and verruculose lip with large verrucose calli on the lip disc define isolated taxonomic position of the species. Discovered plant is assessed preliminarily as critically endangered species.

**Аннотация.** В статье приведено иллюстрированное описание новой орхидеи – *Aerides phongii*, найденной в ксерофитных лесах Южного Вьетнама. Цилиндрические листья и пупырчатая губа с крупными бородавчатыми выростами в ее центре определяют уникальное изолированное положение найденного вида в пределах рода. Согласно предварительной оценке, вновь открытое растение находится в природе на грани полного вымирания.

#### Introduction

*Aerides* Lour. is a relatively small orchid (Orchidaceae) genus which consists of approximately 21 species ranging from India to Papua New Guinea (Christenson, 1993; Kocyan et al., 2008) with main center of species diversity in mainland

tropical Asia. Regional floras of the area of highest diversity include 5 species in China, 6–7 in Thailand and Laos, 4 in Cambodia and 7 species in Vietnam (Averyanov, 1994, 2013; Averyanov, Averyanova, 2003; Chen, Wood, 2009; Newman et al., 2007; Orchids of Cambodia, 2014; Schuiteman, de Vogel, 2000; Schuiteman et al., 2008; Seidenfaden, 1988, 1992). One more species of the genus new for science was discovered recently in Pacific coastal forests of southern Vietnam in limited area with arid climate driest in the eastern Indochina. Thus Vietnam becomes certainly the richest country in the world with respect of species diversity of *Aerides*. Illustrated description of the new species with brief notes on its ecology, expected distribution, assumed protection status, taxonomic position and biology is provided below.

#### *Aerides phongii* Aver., sp. nov. (Fig. 1)

Described from Vietnam (“Southern Vietnam, Ninh Thuan Prov., Bac Ai Distr., in heavily disturbed primary seasonal tropical broad-leaved lowland woodland on silicate rocky slope. Branch

epiphyte on old tree. Rare. Plants were collected and offered for sale on local market by local collectors in February – March 2014, type specimen was purchased by Mr. Nguyen Phong at early March 2014”). **Type** (“Flowered under cultivation in private garden in Hanoi, collected at 12 March 2014 by Nguyen Phong and Phan Ke Loc *P 11235*”) – HNU (holotype), LE (isotype).

**Monopodial perennial herb** with short, erect, unbranched stem to 2(2.5) cm tall, 3–5 mm in diameter. **Roots** many, at the base of stem, light grey to almost white, rigid, wiry and flexuose, creeping and densely adpressed to substrate. **Stem** covered with loosely adpressed, overlapping, distichous, partially disintegrated, more or less rigid, brown leaf sheaths, leafy and slightly twisted at apex. **Leaves** 3–5, distichous, rigid, subulate, canaliculate at lower portion, terete toward acute apex, recurved to arcuate or slightly flexuose, (15)20–30(35) cm long, 3.5–4.5 mm wide, articulate at the base, suddenly broadening at the base into a closed sheath enveloping the stem. **Inflorescence** a raceme; peduncle green, arising from leaf axil near stem base, erect, rigid, 2–5 cm long, 2.5–3 mm in diameter, bearing 1–2(3) short, small, broadly triangular, obtuse sterile bracts 2–4 mm long; rachis rigid (2)3–6 cm long, with (1)5–12(14) distant flowers. **Floral bracts** small, erect, triangular to broadly ovate, acute, 1.5–2.5 mm long and wide. **Pedicel and ovary** white or yellowish-green, shallowly ridged, 1.2–1.6 cm long, curved, slightly flexuose to almost straight. **Flowers** resupinate, shallowly campanulate to widely opened, (1.2)1.4–1.8 cm across; sepals and petals slightly incurved, white to light yellowish, greenish at apex. **Dorsal sepal and petals** subsimilar in shape, ovate to broadly elliptic, 6–7 mm long, 4.5–5 mm wide, round at apex, petals a little smaller, almost flat, dorsal sepal with slightly reflexed lateral margins. **Lateral sepals** oblique broadly ovate, concave or with reflexed lower margin, (6.5)7–8 mm long, 5.5–6.5 mm wide, blunt to obtuse. **Lip** firmly attached to the column foot, not mobile, white to light yellowish, 3-lobed, spurred at the base. **Lip side lobes** triangular, obtuse, straight, erect, 4.5–5.5 mm long, 2–3 mm wide, broadly attached to column foot, white or light yellowish, with 4–5 broad, purple, longitudinal stripes. **Median lip lobe** narrowly rhomboid obovate, 8.5–10 mm long, 6–7 mm wide, white or light yellowish, curved, concave, with round apex, finely erose along margin, disk verruculose with 2 large gibbous verrucose purple calluses at center. **Spur** white or pinkish, broadly conical, (3.5)4–4.5 mm long, 1.5–2 mm wide,

attenuate into inflated, slightly laterally flattened green apex. **Column** pure white, shortly cylindric, 2–2.5 mm tall and broad, truncate, with slightly concave clinandrium and small 2-lobed rostellum, at front with round concave stigma. **Column foot** prominent, fleshy, rectangular, slightly incurved to almost straight, 4–5 mm long, 2–2.5 mm wide. **Operculum** white to light yellowish, hemispheric, 1.5–2 mm in diam., 2-chambered inside, smooth, frontally with a short, triangular beak rounded or blunt at apex. Pollinarium consisting of 2 pollinia, caudicles, stipe and viscidium. **Pollinia** solid, spherical, 0.6 mm in diameter, yellow, smooth, entire but distinctly notched abaxially. **Caudicles** very short, insignificant. **Stipe** hyaline, saddle-shaped. **Viscidium** a thin, flat, round disk. **Fruit** not seen.

**Etymology.** Species is named after its discoverer, Mr. Nguyen Phong.

**Ecology.** Miniature branch epiphyte. Primary dry evergreen coastal tropical monsoon forests on silicate rocks at elevations 50–150 m a.s.l. Rare. Flowers in February – March.

**Distribution.** Species probably inhabits seasonal tropical broad-leaved lowland coastal woods and woodlands in Ninh Thuan province of southern Vietnam.

**IUCN status.** Following to IUCN Red List criteria (IUCN. 2013) species status should be tentatively estimated as endangered (EN) or critically endangered (CR) due to the overall reduction of endemic primary lowland forests and woodlands in the area when remained species populations are restricted to extremely small, highly fragmented subpopulations standing on the verge of full extinction. Timely assessment of the species in nature and its introduction into culture are living important actions for salvation of this interesting orchid which has good prospects for cultivation as miniature ornamental plant.

**Notes.** Most probably discovered species represents local endemism of ancient xerophilous flora spreading along narrow coastal belt shaded from monsoon winds and experienced by annual precipitation with rains falling during short rain season lasting from the end of September to middle December. This rather limited biogeographic region of Vietnam is recognized in modern geography as climatic area of monsoon tropical climate with warm winter and autumn-winter rains (Averyanov

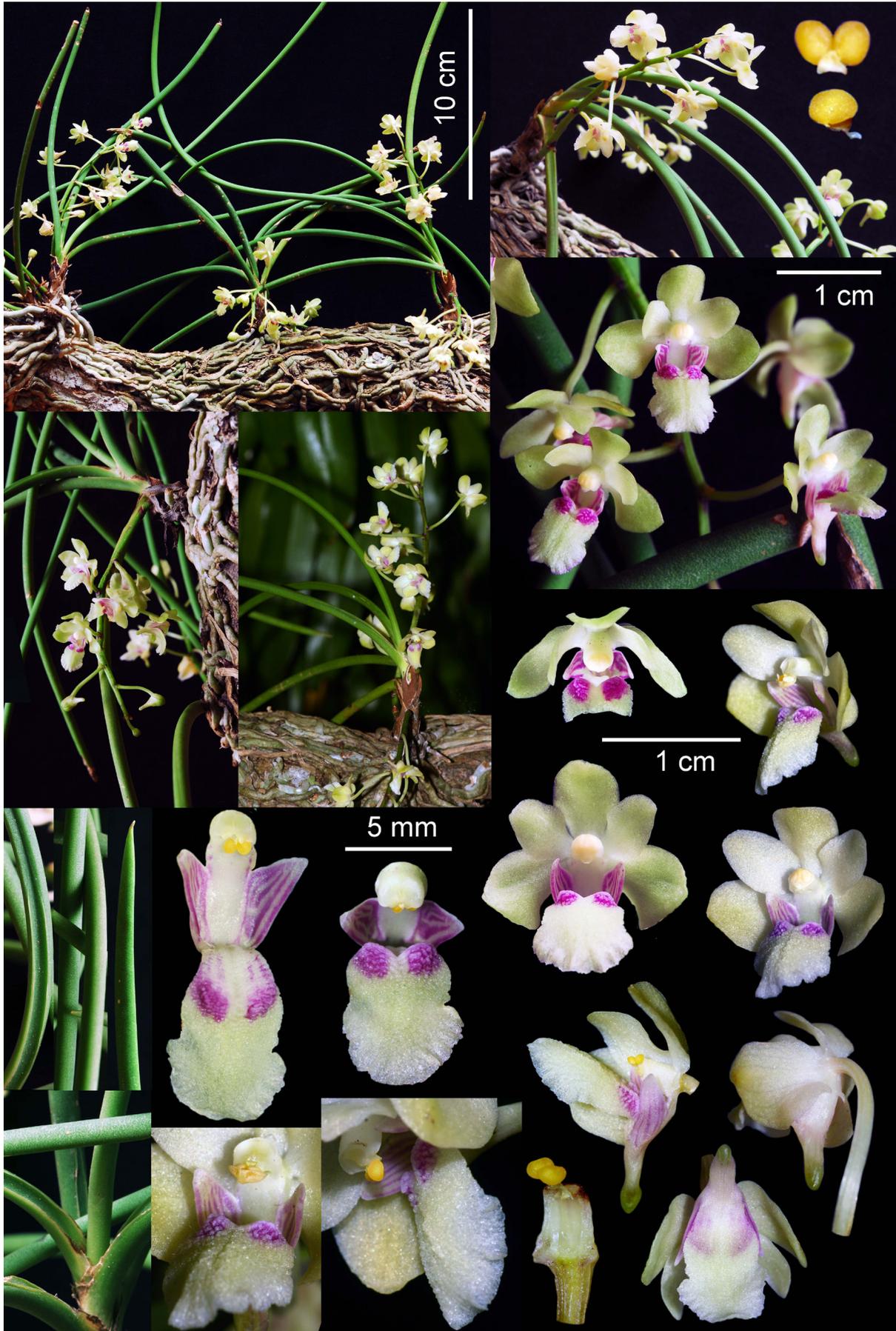


Fig. 1. *Aerides phongii* Aver. Flowering plants, flowers and floral details (all photos from the type specimens by Phan Ke Loc and Chu Xuan Canh, image correction and design by Leonid V. Averyanov).

et al., 2003; Nguyen et al., 2000). Newly described species looks appropriately adapted to semi-desert, strongly seasonal climate conditions by its succulent fleshy cylindrical leaves, unique in the genus. Plant differs strikingly in its unusual habit from all other its congeners and resembles superficially some species of the genus *Holcoglossum* Schltr. with which has hardly direct relations. Verruculose lip with two warty purple gibbositities on the disk is another peculiar character which differ new species from all other known species of *Aerides*. Taxonomically species may be also related to *Rhynchostylis* Blume and *Vanda* R. Br., from which it is distinguished by

the presence of a well-developed column foot as it is observed in all other species of *Aerides*. Discovered novelty undoubtedly desires artificial propagation and cultivation as an unusual beautiful miniature ornamental orchid that may be one of the ways for its effective protection.

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