



Cyrtosia integra (Orchidaceae) - a new addition to the orchid flora of India from Arunachal Pradesh

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Abstract

Cyrtosia integra (Rolfe ex Downie) Garay is an orchid reported as a new addition to the flora of India from Arunachal Pradesh. This mycoheterotrophic species has been observed in West Kameng district. A brief description, illustration and key to the *Cyrtosia* species present in the state are provided.

Résumé

Cyrtosia integra (Rolfe ex Downie) Garay est signalée comme un nouvel ajout à la flore de l'Arunachal Pradesh, Inde. Cette espèce mycohétérotrophe a été observée dans le district de West Kameng. Une brève description, une illustration et une clé des espèces de *Cyrtosia* présentes dans l'état sont fournies.

Key words: *Cyrtosia*, mycoheterotrophic orchid, taxonomy.

Mots clés : *Cyrtosia*, orchidée mycohétérotrophe, taxinomie.

Introduction

Orchidaceae is one of the large angiospermic families. Over 1430 species belonging to 191 genera are present in India (Misra, 2019). Most Indian orchids are found in Northeast region with about 900 species (Rao, 2007). *Cyrtosia* Blume (1825: 396) is a mycoheterotrophic genus belonging to the subfamily Vanilloideae and is closely related to the genus *Galeola* Loureiro (1790: 520) (Cameron, 2009). The genus is represented by 7 species (WCSP, 2021) which are present in Taiwan, southern China, Indochina and parts of tropical Asia (Yang & Lee, 2014). The species grow at altitudes between 700 and 1500 m, in shady, undisturbed forests, in decaying leaf litter constituting the topsoil, which is very light and rich in nutrients. Like most mycoheterotrophic orchids, *Cyrtosia* species are often small in size and live in small populations (Das & Khumbongmayum, 2006).

During a field trip to Sessa Orchid Sanctuary, West Kameng district of Arunachal Pradesh, the 1st. June 2017, we came across an interesting orchid species: *Cyrtosia integra* (Rolfe ex Downie, 1925: 409) Garay (1986: 232). This species was previously only known in Vietnam, Thailand and Laos. In India this genus is represented by 4 species: *C. falconeri* (Hooker f., 1890: 88) Averyanov (2011: 38); *C. javanica* Blume (1825: 396); *C. lindleyana* Hooker f. & Thomson (in Hooker & Fitch, 1855: t.22) and *C. nana* (Rolfe ex Downie, 1925: 409) Garay (1986: 233). *Cyrtosia nana* was reported only from Manipur, Wainem Reserve Forest Area, Senapati District (Yumkham *et al.*, 2013) and the other 3 have been reported from Arunachal Pradesh (Chowdhery, 1998; Hegde revised, 2017). The specimen discussed here (Gogoi & Nyorak 00010), a photo of which has been published in Hegde revised 2017, was wrongly identified as *Cyrtosia javanica* in this revision. *Cyrtosia integra* brings the total number of species in the genus to five in India and up to four in Arunachal Pradesh.

A brief description, illustration, information on habitat and distribution are provided in the present article. The voucher specimen has been deposited at the Herbarium of the Orchid Research Centre Tippi, Arunachal Pradesh.

Taxonomic treatment

Cyrtosia integra (Rolfe ex Downie) Garay, *Botanical Museum Leaflets*. 30: 232 (1986).

basionym: *Galeola integra* Rolfe ex Downie, *Bulletin of Miscellaneous Information*. Kew 1925: 409 (1925).

Type: Thailand, 19/05/1912, Kerr, A.F.G. 304 (Holotype: K!; Isotype: C!).

Specimen examined (Figs: 1 & 2): India, Arunachal Pradesh, West Kameng district, Sessa Orchid Sanctuary, 01/06/2017, Gogoi & Nyorak 00010 (Orchid Research Centre Tippi).

Terrestrial leafless herbs, mycotrophic, achlorophyllous. Rhizomes 1–4, fleshy, rigid at maturity, slender, short, clustered with roots. Roots tuber-like, arranged as fascicles, cylindrical or clavate. Stems up to 40 cm tall, yellowish-brown, erect, fleshy, simple or branch, with lanceolate scales at nodes, internodes 2–7 cm long. Inflorescence branching, in raceme or panicle, terminal or axillary, many flowered, 20–30 cm long. Floral bracts persistent, ovate or triangular, acute, 0.2–0.3 cm long. Pedicel and ovary pinkish, 1–2 cm long, pubescent. Flowers yellow to brown-yellow, broadly opening, 1.5–2.2 cm across, sepals and petals sub-similar. Sepals pubescent outside; dorsal sepal narrowly ovate, 1.2–1.8 × 0.4–0.5 cm, concave; lateral sepals, ovate, 1.2–1.8 × 0.5–0.8 cm. Petals narrowly ovate, 1.2–1.8 × 0.4–0.5 cm. Lip fleshy, concave, suborbicular, hairy inside to the apex, with 2 low thick, glabrous keels at the center. Column white, curved, tapering at base, broadening to apex, 0.6–0.8 cm tall, apex with broad, ear-like, lateral wings finely denticulate along margin. Anther with 2 pollinia. Pollinia without caudicle or viscidium, granular mealy. Fruits cylindrical, light brown-yellow to brown-purple, 5–7 cm long.

Flowering: April – June.

Habitat: Subtropical wet evergreen forests on soil rich in decaying organic substances at the elevation between 1000 - 1400 m.

General distribution: India (Arunachal Pradesh), Vietnam, Thailand and Laos.

Present availability status: The species was found only in a single locality. A conservation status, according to IUCN criteria, is being assessed.

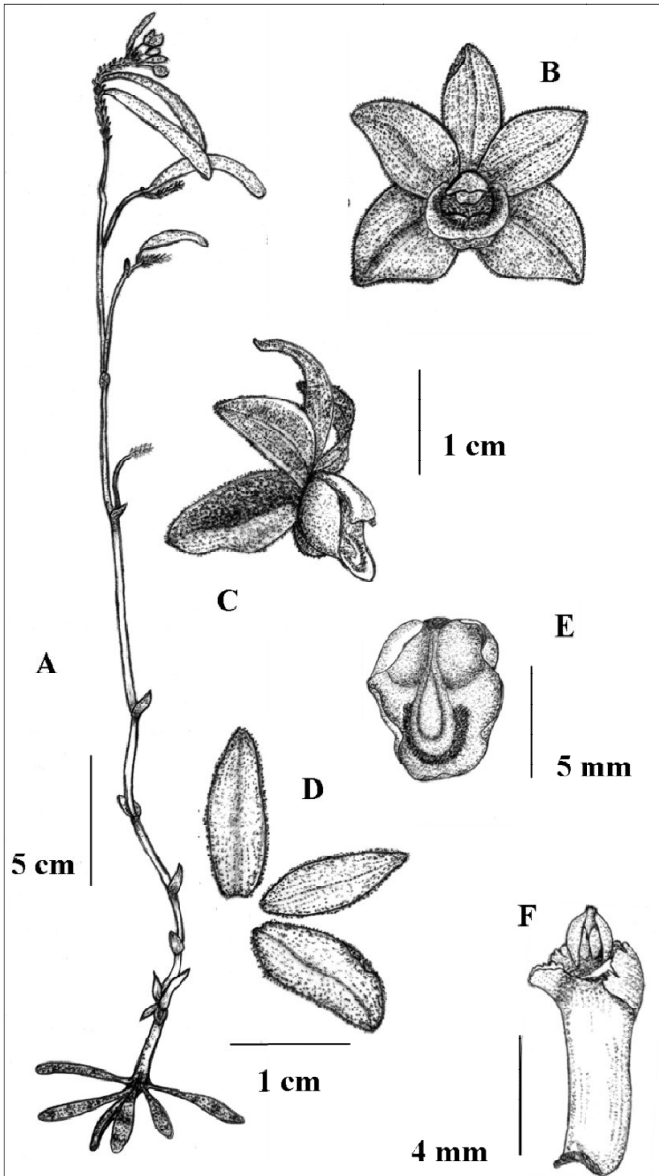


Fig. 1: *Cyrtosia integra*

A: habit; B & C: front and side view of flower; D: sepals and petal; E: lip; F: front view of column.

[Drawing: Khyanjeet Gogoi]

Key to the species of *Cyrtosia* from Arunachal Pradesh

1a. Plant dwarf, 20-40 cm high

2a. Inflorescence branching, lip hairy inside*C. integra*

2b. Inflorescence not branching, lip glabrous.....*C. javanica*

1b. Plant robust, more than 1 meter tall

3a. Rhizomes 4-8 cm thick.....*C. lindleyana*

3b. Rhizomes up to 3 cm thick.....*C. falconeri*

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Fig. 2: *Cyrtosia integra* flowers

[Photo: Jumter Nyorak]

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