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## New Distributional Record of *Christisonia scortechinii* Prain (Orobanchaceae) from Mindanao, Philippines

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### ABSTRACT

Recent botanical expedition at Mt. Kitanglad Range Natural Park (MKRNP) revealed the presence of an interesting parasitic plant. After thorough review of literature, the collected species was identified as *Christisonia scortechinii* Prain, which was recorded only from Luzon, Negros and Palawan Islands in the Philippines. Hence, this paper reports the new record of local distribution of *C. scortechinii* from Mindanao Island, Philippines. A full description of this species along with phenology, availability status, local name, habitat and ecology, and updated distribution are given.

**Key words:** Bukidnon, *Christisonia scortechinii*, *Christisonia wightii*, Mt. Kitanglad, parasitic plant.

### INTRODUCTION

The Broomrape family (Orobanchaceae) consists of annual and perennial plants which are distributed from tropical to subarctic regions, predominately in temperate regions (Kuijt 1969) with 2,100 species distributed in about 90 genera worldwide (McNeal *et al.* 2013). All members of this family are achlorophyllous, root-parasitic and obtain water and nutrients from hosts via their invading haustoria (Chen & Hsiao 2011). Orobanchaceous plants are very closely allied to Scrophulariaceae species, but differed on the structure of ovary and mode of nutrition since the former is parasitic (Parnell 2001). In the Philippines, this family is

represented by 9 genera with 12 species (Pelser *et al.* 2011 onwards). One of these genera is *Christisonia* Gardner, an achlorophyllous and holoparasitic genus, which consists of approximately 20 species distributed in SW China, SE Asia and Indomalaysia (Nickrent 2012). *Christisonia* is by far represented by a single species in the Philippines.

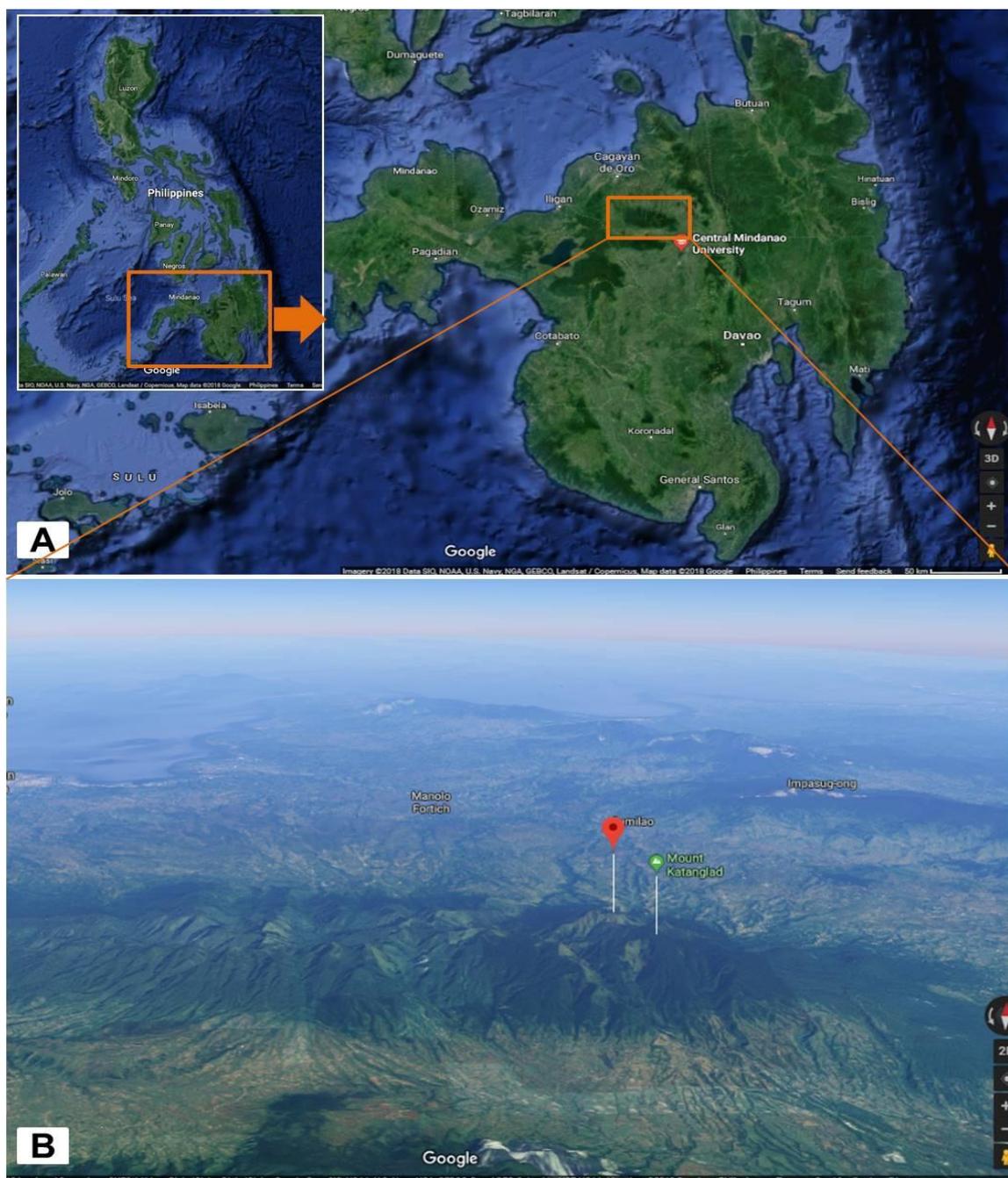
During floristic studies at Mt. Kitanglad Range Natural Park (MKRNP), two populations of an interesting parasitic plant were discovered. After critical scrutiny of collected specimens, literature studies and confirmation done by experts, the collected species revealed to be *Christisonia scortechinii* Prain. The species has been recorded

only from Cagayan in Luzon Island, Negros Oriental in Negros Island and in Palawan Island in the Philippines. Thus, this present paper marks the range extension of this species in Mindanao, Philippines.

## METHODOLOGY

Fieldwork was done at Mt. Kitanglad in July 15, 2018 and September 23, 2018 (Fig. 1). Co's Digital Flora of the Philippines (Pelser *et al.* 2011 onwards), protologue (Elmer 1915) and related

literature (e.g., McNeal *et al.* 2013; Ent & Wong 2015) were used for identification. Taxonomic identification was carried out using fresh plant samples and collection of flowers in ethanol. A full description of this species along with phenology, availability status, local name, habitat and ecology, and updated distribution are given. Detailed taxonomical descriptions and color photographs of this species are also presented.



**Fig. 1.** Study site. **A)** Map of the Mindanao Island (inset: Map of the Philippines), **B)** Mt. Kitanglad Range Natural Park (©2018 Google image).

## TAXONOMIC TREATMENT

*Christisonia scortechinii* Prain, J. Asiat. Soc. Bengal, Pt. 2, Nat. Hist. 73 (1904) 205 **Fig. 2**

Terrestrial, found in the ground rich in leaf litter;; stem erect, short, solitary or usually few branched and much winged toward the top, 5 cm long, occasionally forming clumps, 1 cm thick, striate, glabrous, dirty yellowish white or brown; branches commonly 3, arising from near the same place toward the distal end of the short thick stem. Flowers whitish, found above the ground layer rich in leaf litter; bracts toward the base, short and scattered, glabrous, elliptic in outline, chiefly covering over the upper side of the calyx, 1.50–1.70 cm long by 1.20–1.30 cm wide; calyx dark yellow or brownish, succulent, glabrous, nearly 2.3–2.8 cm long, throat oblique and well stilt open from the lower side, the upper end very broadly toothed, lateral teeth smaller, the lower end minutely lobed or not at all; corolla white, 5 cm long, 5 mm thick toward the base, gradually inflated toward the very oblique throat, fleshy, 1.5 cm across the throat, glabrous; segments about 5, subequal, 2.5 cm across when in full anthesis, rotately spreading; stamens apparently as many as corolla lobes; filaments glabrous, ribbon-like, adnate except their distal ends above the middle of the corolla; anther block-shaped, 3.5 mm long, subbasifixed; pistil glabrous, nearly 5 cm long; stigma peltate, style subterete equaling the corolla tube, ovary elongated composed of dark brown ovules.

**Phenology:** Flowering of *C. scortechinii* was observed from July to September.

**Availability Status:** Wild and rare with less than 30 matured individuals.

**Local Name:** As reported by Elmer (1915), *C. scortechinii* is known as “Satagbak” in the Visayan dialect. There are no reported local names of this plant from the people of the adjacent communities.

**Habitat and Ecology:** *C. scortechinii* was found growing as root parasitic on bamboo at an elevation of 1,421 masl. The species was found in the ground which was almost covered by leaf litter. Only two populations were found in the mountain site which was covered by dipterocarp trees. Noteworthy in the site was the presence of an epiphytic and endangered ginger – *Hedygium philippinense* K.Schum. (Zingiberaceae) and other parasitic plant – *Balanophora papuana* Schltr. (Balanophoraceae) which were found near the populations of *C. scortechinii*.

This paper agreed to the report of Parnell *et al.* (2014) that *C. scortechinii* occurs in drier mixed deciduous forests. The occurrence of this species in

the Philippines was first reported by Elmer (1915) in rich damp ground among *Geocharis fusiformis* (Ridl.) R.M.Sm. (formerly *Amomum fusiforme* Ridl.) along the upper edge of a deep ravine at Cuernos Mountain of Negros Oriental at an elevation of 1750 ft. Elmer noted that “the clumps seem to lie loose in the fertile soil beneath the humus covering and no connection was found with other living plants.”

**Distribution:** Peninsular Malaysia, Borneo, China, Laos, Thailand, Vietnam, Philippines (LUZON: Cagayan, NEGROS: Negros Oriental, Dumaguete, Cuernos Mts., PALAWAN) (Pelser *et al.* 2011 onwards) and MINDANAO: Bukidnon (present study).

**Specimen Examined:** PHILIPPINES: Mindanao. Bukidnon, Lantapan, Barangay Kaatuan, Mt. Kitanglad Range Natural Park, near the Cinchona Forest Reserve (1,421masl), 8.061930°N 125.003210°E, 15 July 2018, *N.P. Mendez 007 with R.A. Mendez, A.L. Hongco, R. Patano, Jr., D. Amper & A.B. Mohagan* (CMUH).

**Notes:** In 1915, Elmer thought the he collected a ginger species, but later on identified as a species belonging to genus *Christisonia* which he reported to be a new species to science and named *C. wightii* Elmer. However, recent study of Ent & Wong (2015) considered that Elmer’s species is the same as *C. scortechinii* and regarded that Elmer’s description of the stigma may have been inaccurate for delineating the two species. Thus, *C. wightii* was reduced into synonymy with *C. scortechinii*. The same with Elmer, the main author thought that the species belongs to either *Meistera* Giseke or *Wurfbainia* Giseke (previously placed under *Amomum*) of Zingiberaceae. However, when the species was examined closely and the floral parts were dissected, the reproductive parts of *C. scortechinii* were very distinct from that of Zingiberaceae species. Furthermore, the specimen, described herein, constitutes to the Philippine material of *C. scortechinii* since the type specimen of *C. wightii* which was deposited at the PNH was lost during WWII (Ent & Wong 2015).

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**Fig. 2.** *Christisonia scortechinii* Prain. A) Habit with unopened flowers, B) Habit with flowers in anthesis, C) Frontal view of the flower, D) Longitudinal section of the flower (All photographs were taken by R.A. Mendez).

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