

# *Cryptocoryne wongsoi* (Araceae), a new species from Sumatera, Indonesia

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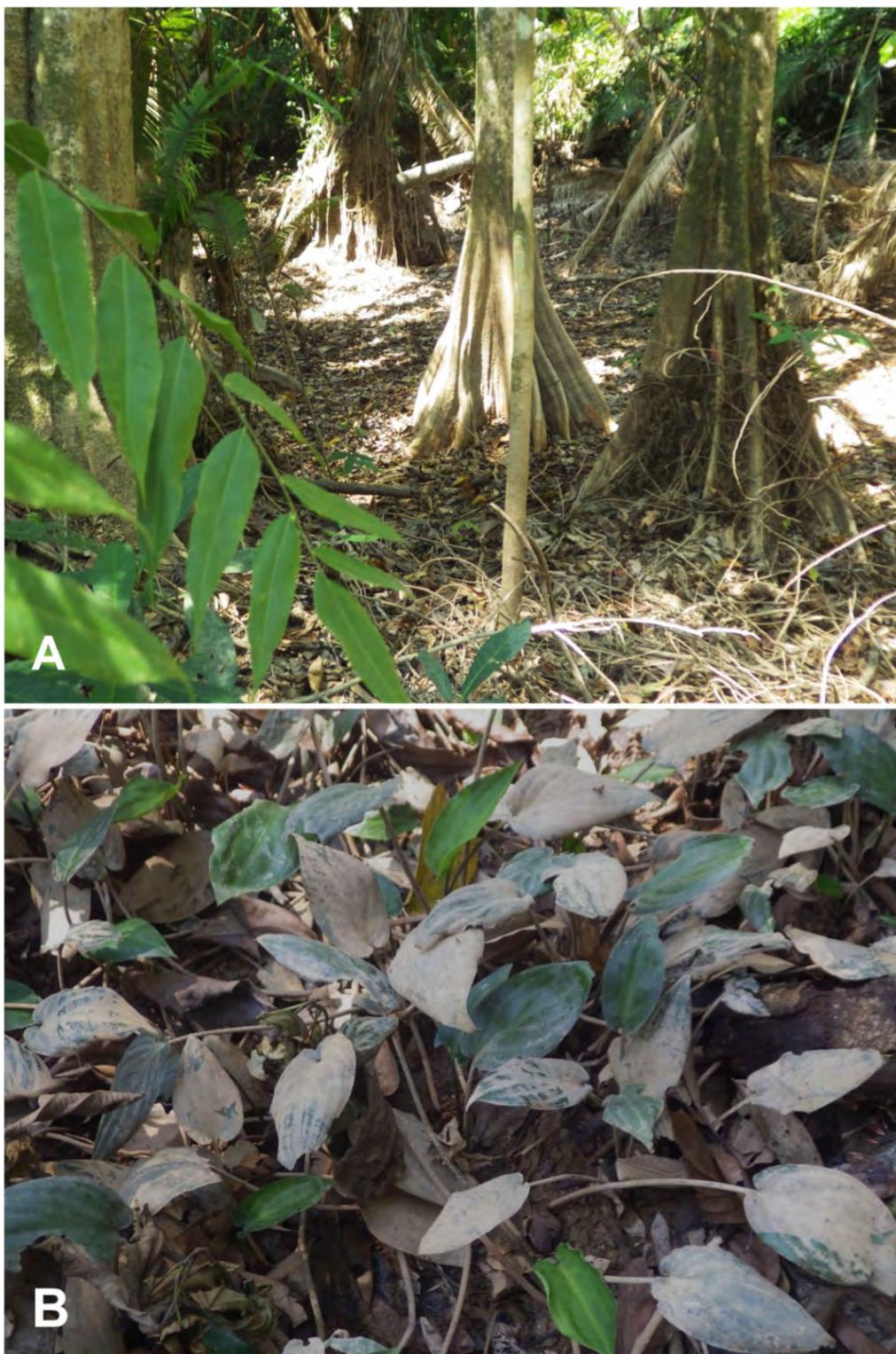
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## ABSTRACT

*Cryptocoryne wongsoi* is described and illustrated as a new species from north-western Sumatera, Indonesia. *Cryptocoryne wongsoi* differs from other species with similar leaves and habitat type by having a

hispidulous lower leaf surface, a 15 – 25 cm long spathe with an upright backwards-bent limb which later becomes forward bent or obliquely spirally twisted; the kettle is cylindrical without a distinct narrowing of the inner wall; the chromosome number is  $2n = 34$ .



**Figure 1.** *Cryptocoryne wongsoi* I. B. Ipor. **A.** Showing the natural habitat in the dried out swamp forest SE of Meulaboh, Sumatera. **B.** A close up of the stand shown in figure A. Images © S. Wongso.



**Figure 2.** *Cryptocoryne wongsoi* I. B. Ipor. Showing the cultivation in a partly filled 5-liter tank, still with mud on the leaves from the natural habitat. Image © S. Wongso.

## KEY WORDS

Aroids, chromosome number, taxonomy, Sumatera

## INTRODUCTION

The Indonesian island of Sumatera and the close-by Riau Islands (Karimun, Batam, Bintan, Lingga, Singkep, Bangka, and Belitung) have for some time been known to harbor a number of *Cryptocoryne* species: Thirteen all together (six endemic - E): *C. bangkaensis* Bastmeijer (2007, E (Bastmeijer & Jacobsen, 2007)), *C. ciliata* (Roxburgh) Schott (1832), *C. cordata* Griffith var. *diderici*

(De Wit) N. Jacobsen (1970/2002, E), *C. fusca* De Wit (1970), *C. griffithii* Schott (1856), *C. longicauda* Engler (1879), *C. minima* Ridley (1910), *C. moebmannii* De Wit (1983, E (Bastmeijer & Duyfjes, 1997; Jacobsen, 1988)), *C. nurii* Furtado var. *nurii* (1935), *C. pontederiifolia* Schott (1863, E (van Bruggen & Bastmeijer, 1995.)), *C. schulzei* De Wit (1971), *C. scurrilis* De Wit (1962, E (Reitel & al., 2012)), and *C. villosa* N. Jacobsen (1980, E (Jacobsen, 1980) (Bastmeijer, 2016; de Wit, 1990); and additionally three, yet unnamed natural interspecific hybrids with the working names: *C. Sg. Pelan*, *C. Sg. Pijoan*, *C.*

Sumatera 2 (Jacobsen & al., 2016). This list of species including year of publication shows that just less than half of the *Cryptocoryne* have been known for more than 80 years (six) while the rest (seven – now eight) have been described within the last 55 years, as knowledge of the flora has increased.

The island of Sumatera, with more than 470,000 km<sup>2</sup> of land area, is over three times the size of adjacent Peninsular Malaysia, which has nine *Cryptocoryne* species and four natural hybrid combinations (Bastmeijer, 2016; Jacobsen & al., 2016): the diversity of *Cryptocoryne* in Sumatera is apparently lower than might be expected.

Until recently, *Cryptocoryne* of Sumatera has only been investigated sporadically by a few people (for overview see Bastmeijer, 2016).

Early in 2015, I. B. Ipor and S. Wongso had the opportunity to visit the west coast of the northern Aceh province of Sumatera, a region where you may find the habitats of the *C. pontederiifolia* – *C. moehlmannii* complex (see Bastmeijer, 2016).

In a dried-out swamp forest near the river, was found a *Cryptocoryne* with leaf blades similar to those of *C. pontederiifolia* and *C. moehlmannii*, however, no flowering specimens were found. When it flowered afterwards in cultivation the plants proved to have a spathe with a long tube, quite unlike that found in *C. pontederiifolia* and *C.*

*moehlmannii*. Until we had made a closer investigation of the plant, we speculated that it could be a *C. pontederiifolia* with a long spathe tube, but turned out to have the distinguishing characters, as per the diagnoses. The only other species with hairs on the lower surface of the leaf blades are *C. ferruginea* Engl. from Borneo and *C. fusca* De Wit, which is found mainly on Borneo but extends to the island of Belitung (see Bastmeijer, 2016). The hairs of these two species are longer than those found in the plant from SE of Meulaboh. The Meulaboh plant also proved to have a chromosome number of  $2n = 34$ , while *C. moehlmannii* and *C. pontederiifolia* have  $2n = 30$  (Jacobsen, 1977; Arends & al., 1982).

On the basis of the comparison of the Meulaboh plant to other known *Cryptocoryne* species, it is clear that it represents a new species, with the distinguishing characters outlined here.

***Cryptocoryne wongsoi*** I.B. Ipor, **sp. nov.**  
Type: Indonesia, Sumatera, Aceh, Nagan Raya Regency, SE of Meulaboh, 31 January 2015, *S. Wongso & I. B. Ipor*, SW 1507, cultivated (BO holotype, C, L isotypes).  
**Figure 1–7.**

### Diagnosis

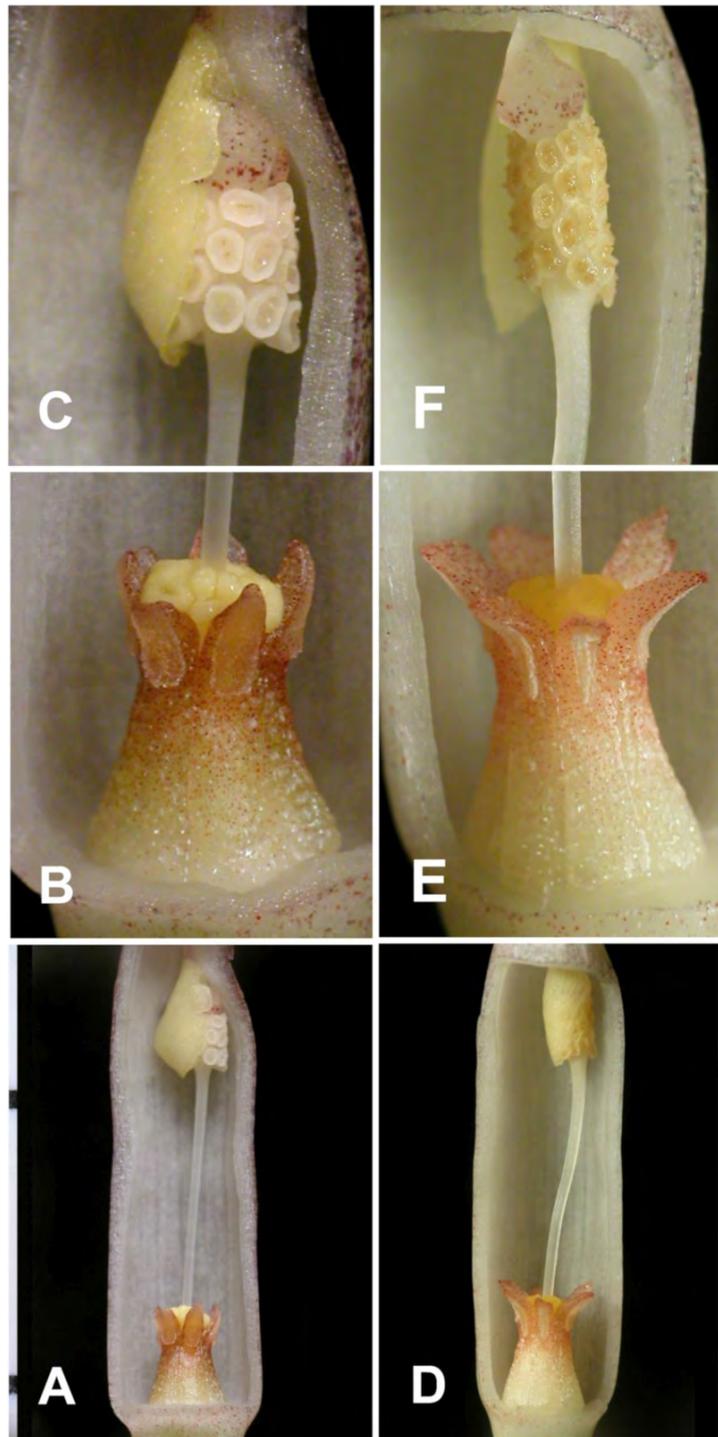
*Cryptocoryne wongsoi* is similar to *C. pontederiifolia* Schott and *C. moehlmannii* De Wit by the general appearance of the leaves, but differs by having the lower leaf surface hispidulous with minute, short hairs



**Figure 3.** *Cryptocoryne wongsoi* I. B. Ipor. Flowering plant grown emergent in a pot. Scale units 1 cm. Image © J.D. Bastmeijer.



**Figure 4.** *Cryptocoryne wongsoi* I. B. Ipor. **A.** Showing a detached spathe on the opening day with an upwards, backwards bent limb. **B.** Showing a detached spathe on the second day of opening with a forward, spirally coiled limb. Scale units 1 cm. Images © J.D. Bastmeijer.



**Figure 5.** *Cryptocoryne wongsoi* I. B. Ipor. **A, B, C** Showing elements from the same spathe as in figure 3A. **A.** Kettle cut open showing the male and female flowers. **B.** Showing the female flowers with the receptive stigmas. **C.** Showing the not yet mature male flowers. **D, E, F** Showing elements from the same spathe as in figure 3B. **D.** Kettle cut open showing the male and female flowers. **E.** Showing the female flowers with the dried, non-receptive stigmas. **F.** Showing the mature male flowers. Scale units 1 cm. Images © J.D. Bastmeijer.

(glabrous in *C. moehblmannii* and *C. pontederiifolia*); the spathe has a 10 – 18 cm long tube (about 1 cm in *C. moehblmannii* and *C. pontederiifolia*), with an upright limb that later becomes forward bent or spirally twisted, lacks a distinct collar zone (collar in *C. moehblmannii* and a collar zone in *C. pontederiifolia*); the kettle is c. 2 cm long, cylindrical, without a distinct narrowing on the inner wall at 2/3 from the bottom (*C. moehblmannii* and *C. pontederiifolia* have a c. 1 cm long kettle with a constriction 2/3 from the bottom); the chromosome number is  $2n = 34$  ( $2n = 30$  in *C. moehblmannii* and *C. pontederiifolia*).

## Description

**Amphibious herb** with a stout rhizome and long, robust subterranean stolons. **Leaves** 4 – 8, 15 – 45 cm long, leaf **blades** up to  $8 \times 17$  cm, cordate, spreading more or less horizontally from the more or less upright petiole, above smooth with 3 pairs of veins somewhat impressed above, dark green; lower surface pale green, hispidulous, covered with minute, short hairs also present along blade margin when viewed from above; **cataphylls** 4 – 6 cm long, dark brownish green, often present even when not flowering. **Spathe** 15 – 25 cm long, in the upper outer part red-brownish; **kettle** c. 2 cm long, cylindrical, inside white; **tube** 10 – 18 cm long, more or less twisted; the upright backward bent **limb** later becoming forward-bent or obliquely spirally twisted, 3 – 5 cm long, inside yellow around the tube, opening turning reddish towards apical part, and a reddish line along the margin, smooth

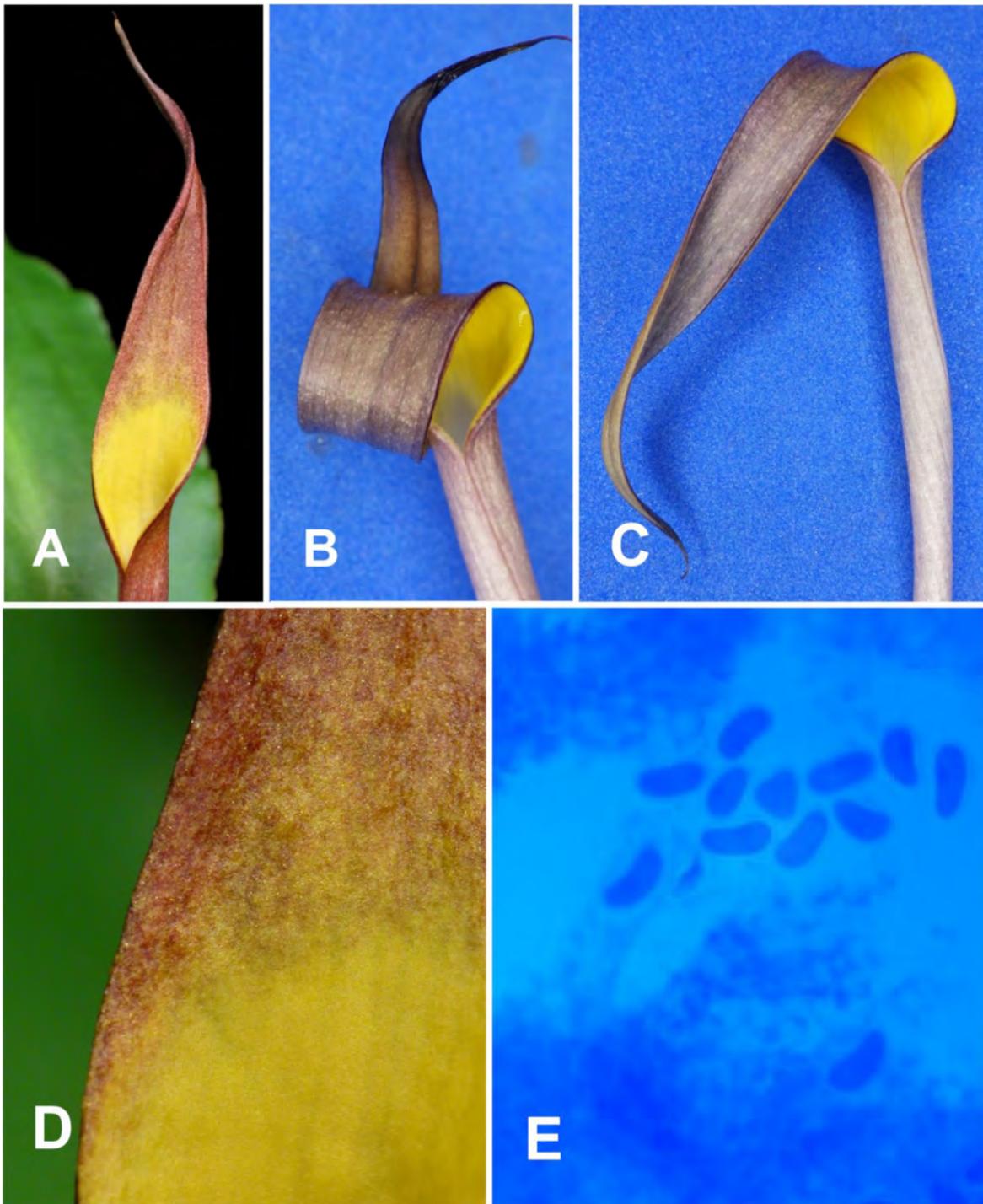
without a distinct collar zone, at late anthesis limb unfolding and bending downwards. **Spadix** c. 2 cm long, with mostly 6 **female** flowers upwards purplish sprinkled, with narrow **stigmas** which change shape from narrowly ovate to obovate during anthesis, and become narrower than the somewhat red spotted styles; **olfactory bodies** rounded, some with a sunken center, yellowish; **male flowers** 25 – 35, white becoming yellowish; **appendix** white, spotted red; valve yellowish. **Infructescence** not observed. **Pollen** fertility: 100 %. **Chromosome number.**  $2n = 34$ , reported here.

*Distribution* — Endemic to Sumatera, known only from the type locality in Aceh, SE of Meulaboh, but probably also occurring along the whole river and possibly also in other rivers in the region.

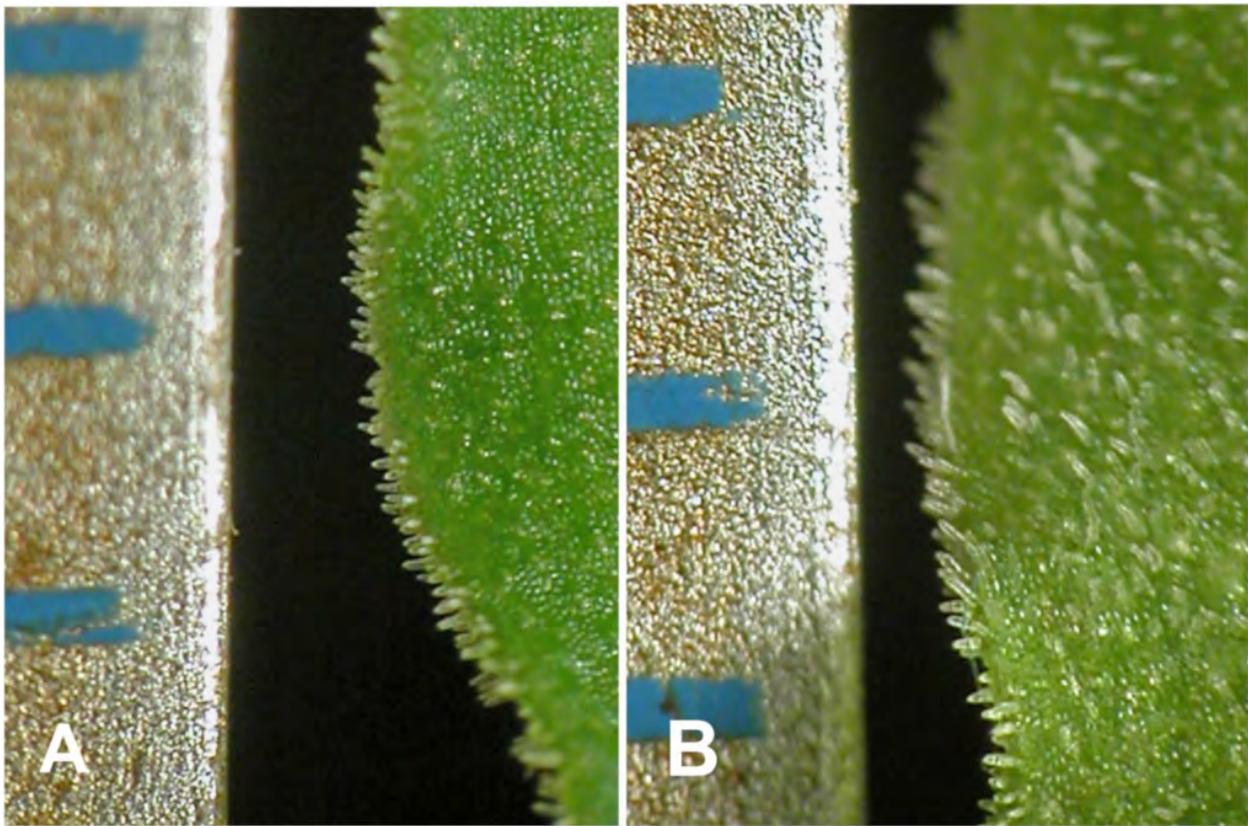
*Habitat* — The type specimen was collected in a forest swamp near the main river and only receives dappled sunlight during the day.

*Conservation status* – Data Deficient (DD) (IUCN/SPS, 2014): only known from the type locality, more observations are needed in order to outline a conservation assessment. The habitat of *C. wongsoi* is rather inaccessible except in very dry seasons, which might help to preserve it.

*Eponymy* — Named after Dr Suwidji Wongso of Surabaya, who has contributed



**Figure 6.** *Cryptocoryne wongsoi* I. B. Ipor. **A.** Showing the limb of a spathe on the opening day, which is upwards, backwards bent. **B.** Showing the limb of a spathe on the second day of opening, which is forward, spirally coiled. **C.** Showing the limb of a spathe on the second - third day of opening, which is forward bent. **D.** Close-up of the limb of the spathe at the tube opening. **E.** The Cotton Blue stained fertile pollen (length c. 40  $\mu$ m). Images © A, D-E J.D. Bastmeijer; images B-C © S. Wongso.



**Figure 7.** *Cryptocoryne wongsoi* I. B. Ipor. **A.** Upper leaf surface showing the scabrous margin of the leaf with the short hairs. **B.** Showing the scabrous lower surface of the leaf with the numerous short hairs. Scale units 1 mm. Images © J.D. Bastmeijer.

so much to the knowledge of the Indonesian *Cryptocoryne*.

*Cultivation* — *Cryptocoryne wongsoi* is easily cultivated emergent in a slightly acid layer of leaf litter of the European beech tree (*Fagus sylvatica*) with some addition of some mineral soil at temperatures between 22 and 27 (-30) °C. Even in a simple mixture of sand and peat litter, it grows as easily as some of the more common and hardy Sri Lankan species, e.g., *C. wendtii* De Wit (Bastmeijer, 2016). Light intensity seems to be unimportant. The plants propagate well

by runners, and under appropriate conditions becomes almost weedy.

### Acknowledgements

We would like to thank the authority of University Malaysia Sarawak for allowing Prof Dr Isa B. Ipor to participate in the field sampling. Mrs. Karen Rysbjerg Munk prepared the chromosome slides. The editor and two anonymous reviewers are also thanked for their useful and constructive comments on an earlier draft of this paper.

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