

COLOCASIA HASSANII (ARACEAE), A NEW SPECIES OF AROID FROM BANGLADESH

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Abstract

Colocasia hassanii, a new species of Araceae from Bangladesh, is described and illustrated. *C. hassanii* is closely related to *C. esculenta* (L.) Schott but differs from the later by the number of constriction (two) in spathe, presence of a sterile male zone in spadix, and bitter in taste. A morphological comparison between *C. hassanii* and *C. esculenta* is provided.

Introduction

The genus *Colocasia* Schott is represented by 13 species in the world (Yin, 2006) and eight species are found in Asia and Malay Archipelago (Mayo *et al.*, 1997). In Bangladesh, so far this genus was known to contain the following nine species: *C. affinis* Schott, *C. esculenta* (L.) Schott, *C. fallax* Schott, *C. gigantea* (Blume) Hook. f., *C. heterochroma* H. Li *et* Z.X. & Wei, *C. lihengiae* C.L. Long *et* K.M. Liu, *C. mannii* Hook. f., *C. oresbia* A. Hay and *C. virosa* Kunth. (Ara, 2007; Ara and Hassan, 2012).

During the revisionary work on Araceae since 1988 from Bangladesh the author has made an extensive field survey throughout the country and collected a few number of *Colocasia* Schott specimens which did not match with any species previously known. The flowering and fruiting specimens were collected and preserved for identification. The rhizomes were also collected and grown in the garden of Bangladesh National Herbarium (DACB), Dhaka and in the Botanical Garden of the University of Dhaka. The specimens were critically examined and compared with the identified specimens of *Colocasia* Schott available at BK, BKF, BM, CAL, DACB, K, DUSH (Dhaka University Salar Khan Herbarium), HCU (Herbarium of Chittagong University), BCSIRH (Herbarium, Bangladesh Council for Scientific and Industrial Research) and BFRIH (Herbarium, Bangladesh Forest Research Institute). Moreover, consultation of relevant literature (Wallich, 1829-1849; Roxburgh, 1832; Wight, 1843-1845; Hooker, 1893; Prain, 1903; Engler and Krause 1920; Haines, 1924; Heinig, 1925; Hill, 1939; Raizada, 1941; Sinclair, 1956; Mitra, 1958; Hu, 1968; Hotta, 1970; Rao and Verma, 1976; Nicolson, 1976, 1979, 1987; Madison, 1978; Nasir, 1978; Heng, 1979; Mayo, 1985; Karthikeyan *et al.*, 1989; Naithani, 1990; Heng and Wei, 1993; Noltie, 1994; Hay, 1996; Pullaiah, 1997; Toha, 2000; Long and Liu, 2001; Yin, 2006) on the family Araceae revealed that collected specimens differed from other described species of the genus *Colocasia* Schott. These specimens appeared to be closely related to *C. esculenta* Schott morphologically but differed with some important characters. After critical study these specimens were recognized as to belong a new species, *Colocasia hassanii* **sp. nov.**

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Results and Discussion

Colocasia hassanii H. Ara, **sp.nov.**

(Figs 1 & 2).

Diagnosis: *Colocasia hassanii* H. Ara is closely related to *C. esculenta* (L.) Schott but can be easily differentiated by the number of constriction (two) present in spathe, presence of sterile male zone in spadix and bitter in taste.

Bengali name: *Tita Kachu*.

English name: Bitter Taro (proposed).

Holotype: Bangladesh, Bandarban district, on the way to Betchari, 22.9.2004, Hosne Ara HA 1215, 1216 (DACB).

Annual herb. Underground corm perennial, c. 2.5 cm in diam., and c. 2 cm high; stolons 1–2, trailing horizontally, non-branching, thin, pale green or pale purple, c. 20 cm long, c. 0.5 cm in diam. Leaves 4–6, peltate, 15–45×8–30 cm, ovate, acute, cordate, dark green above and light green beneath, base shallowly cordate, glaucous, venation pinnately reticulate, sinus 1–3 cm long; petiole 20–65 cm long, sheathing for about one-third at the base. Inflorescence solitary or paired. Peduncle 10–14 cm long, shorter than petiole. Spathe having two constrictions, 15.0–25.5 cm long, lower convolute part (tube) light green, 4.0–6.5 cm long, c. 2 cm in diam., nearly cylindrical; upper part lanceolate, light yellow, 11–19 cm long. Spadix sessile, shorter than spathe, 10–19 cm long. Female zone cylindrical, 2.8–3.0 cm long, c. 1 cm in diam.; staminode c. 1.8 cm long, creamy; sterile portion slender, c. 1.8 cm long, c. 0.4 cm broad at the middle, creamy; male portion 2.1–2.8 cm long, 0.4–0.5 cm in diam.; a sterile male portion present below the appendix, 0.4–0.5 cm long, c. 0.2 cm in diam.; appendix 6.5–10.0 cm long, 0.3–0.5 cm in diam. Ovary numerous, narrow, green, 3–5×2–3 mm; style very short, green; stigma c. 0.05 cm in diam., yellow, placentation parietal, ovules 6, c. 1.5×1.0 mm; staminode cream in colour, c. 0.15×0.2 cm; male flower 6–8 androus, c. 0.1×0.12 cm. Fruit a berry.

Flowering and fruiting period: June to October.

Ecology: Grows in the hilly areas as undergrowth.

Distribution: Eastern hilly areas of Bangladesh (Bandarban, Khagrachari and Rangamati hill districts), Cox's Bazar and Moulvibazar districts.

Specimens examined: Bandarban: On the way to Betchari, 22.9.2004, Hosne Ara HA 1215, 1216 (DACB); Meghla forest area, 23.9.2004, Hosne Ara HA 1291, 1292 (DACB); Cox's Bazar: Chota Inani, 30.9.2005, Hosne Ara HA 2432 (DACB); Bara Inani, 30.9.2005, Hosne Ara HA 2462 (DACB); Himchari area, 30.9.2005, Hosne Ara HA 2522 (DACB); Khagrachari: Alutilla, 11.7.2003, Hosne Ara and Sarder Nasir Uddin HA 461 (DACB); Jamtoli, 12.7.2003, Hosne Ara HA 484 (DACB); Moulvibazar: Adampur beat, Kawargola forest, 3.7.2005, Hosne Ara HA 1747 (DACB); Lawachara reserve forest, 4.7.2005, Hosne Ara HA 1777 (DACB); Adampur beat, Kawargola forest, 6.10.2005, Hosne Ara HA 2625 (DACB); Rangamati: Kaptai, Shilsori village, Velbapara, 8.7.2003, Hosne Ara and Sarder Nasir Uddin HA 391 (DACB); Kaptai, Sitapahar, 14.10.2003, Hosne Ara HA 711 (DACB); Rajbari area, 18.9.2004, Hosne Ara HA 1122 (DACB); Dhaka: Bangladesh National Herbarium garden (Cultivated), 18.6.2015, Hosne Ara HA 2881 (DACB) [Originally collected from Bandarban district].

Ethnobotanical information: The indigenous people of Bangladesh use its petioles in curries.

Etymology: This species is named in honour of Dr. Mohammad Abul Hassan, Professor of Botany, University of Dhaka, who has made outstanding contribution to the taxonomy of flowering plants in Bangladesh.

Note: The chromosome number has been determined for the new species *Colocasia hassanii*. Preliminary determination of 2n chromosome number appears as 28.

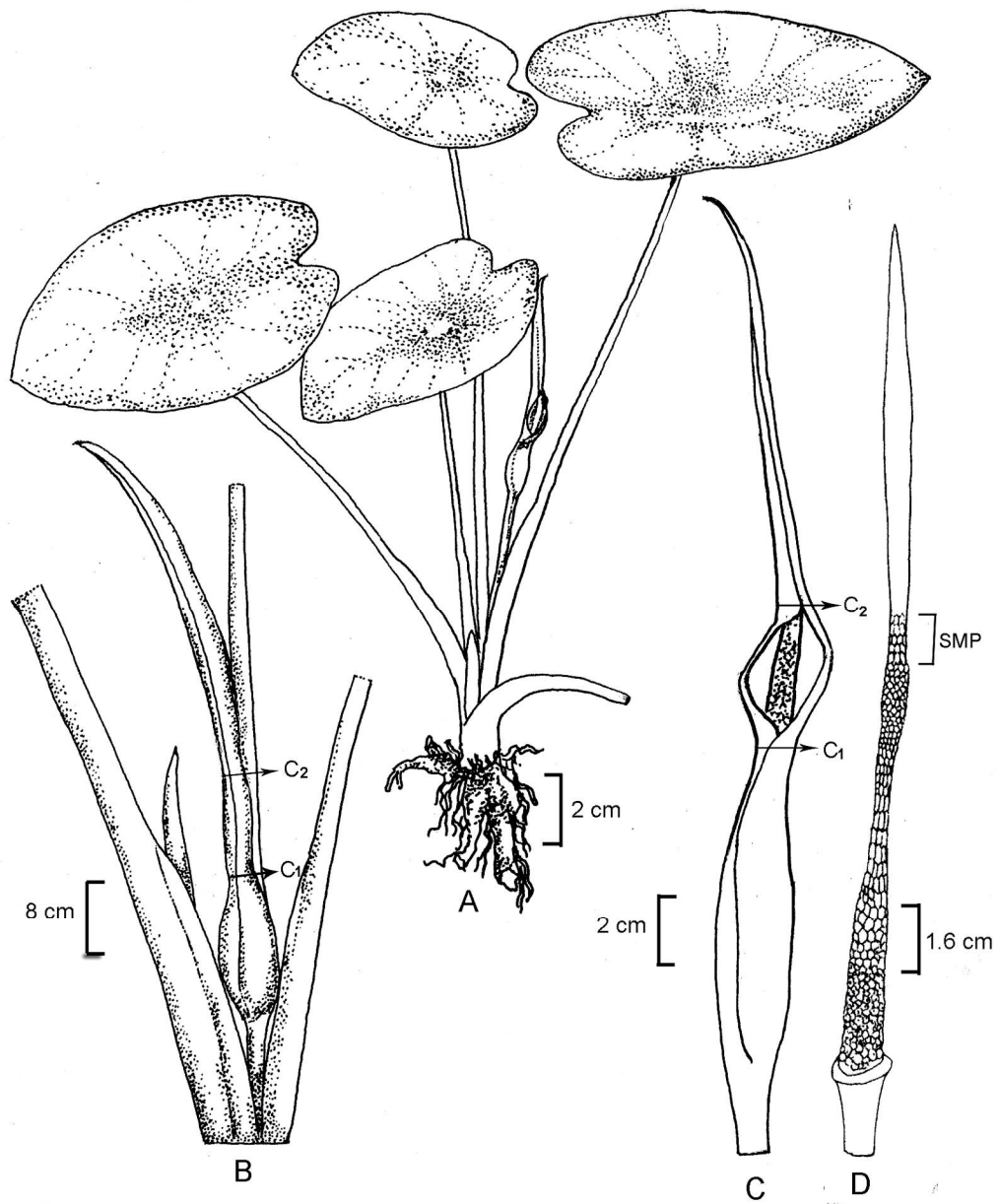


Fig. 1. *Colocasia hassanii* H. Ara, **sp. nov.**: A. Habit; B. Spathe (C₁: Constriction 1; C₂: Constriction 2); C. Inflorescence; D. Spadix (SMP: Sterile male portion).

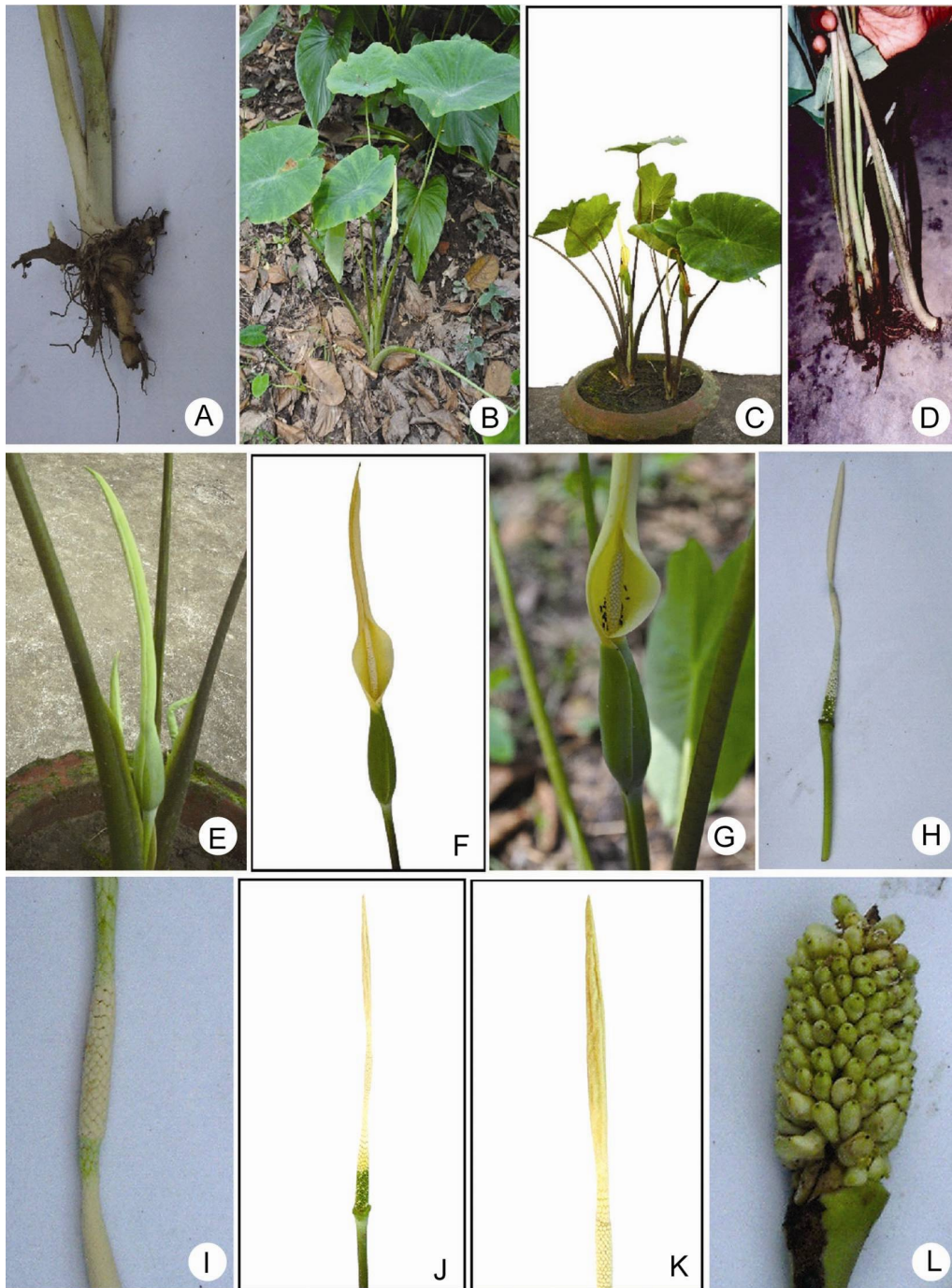


Fig. 2. *Colocasia hassanii* H. Ara, **sp. nov.**: A. Tuber; B. Habit at BNH garden; C. Habit at home garden; D. Petiole; E.F.G. Inflorescence; H.I.J. Spadix; K. Appendix; L. Infructescence.

The major morphological differences between *C. hassanii* sp. nov. and *C. esculenta* are outlined in Table 1.

Table 1. Morphological comparison of *Colocasia hassanii* sp. nov. with *C. esculenta*.

Characters	<i>Colocasia hassanii</i> sp. nov.	<i>Colocasia esculenta</i>
Petiole	c. 62 cm long, green or purple, spotted	c. 100 cm long, green or purple, not spotted
Spathe	Two constrictions present between tube and limb	One constriction present between tube and limb
Tube and limb of the spathe	Both sides of the lower spathe light green and both sides of the limb light yellow and leathery	Both sides of the lower spathe green and both sides of the limb golden yellow and leathery
Spadix	Sterile male portion present	Sterile male portion absent
Tip of the appendix	Pointed	Obtuse (blunt)
Taste	Bitter	Not bitter

Conservation status: *Colocasia hassanii* sp. nov., according to IUCN Red list category (IUCN, 2017) is considered as Least Concern (LC) as the species is found in Bandarban, Cox's Bazar, Khagrachari, Moulvibazar and Rangamati and seems to be available to the local people.

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