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Cryptocoryne (Araceae) a new generic record for the Flora of Nepal

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Abstract: *Cryptocoryne* Fisch. ex Wydler, a member of family Araceae is herein reported as a new generic record for the flora of Nepal. The newly reported *Cryptocoryne retrospiralis* (Roxb.) Kunth is an amphibious plant, collected from Eastern Nepal characterize by having the spathe of spirally twisted limb, long cylindrical tube without a collar, elongated to variable spots on the wall of spathe and small spadix inside kettle. Description, illustrations and distributional notes are provided for the verification of the new report.

Keywords: Araceae, *Cryptocoryne retrospiralis*, East Nepal, Monocot, Morang District.

Introduction

Araceae Juss. is one of the largest families of monocots, comprising 144 genera and 3645 species (Boyce & Croat, 2011), primarily distributed in Africa, South America, South-East Asia and Australia (Nauheimer *et al.,* 2012). *Cryptocoryne* with 68 accepted species, is distributed in tropical and subtropical Asia (POWO, 2023). The genus is characterized by its unique structure of spathe: divided into upper short limb and lower long tube, the tube is formed by fusion of spathe margin and it is open as a limb in different structures (elongated, flat, ovate, enlarge tail like, and spirally coiled.) with various shapes, sizes and colors, at the base of tube rounded kettle is present (formed without fusion of spathe margin), inside the kettle spadix is present containing male flowers at upper part, sterile zone in middle and female flowers at the lower part (Hooker, 1894; Mayo *et al.,* 1997; Wongso *et al.,* 2019). The structure of limb is one of the key features of this genus for species level classification.

During occasional field works near the wetlands and tropical forests of Morang districts of eastern Nepal, a unique aquatic plant was collected. The plant was submerged in water with erect and long cylindrical spathe spirally twisted on the top. Close inspection of the structure of spathe and other parts confirmed the plant to be *Cryptocoryne retrospiralis* (Roxb.) Kunth.

In Nepal, the family Araceae comprise of 17 genera and 42 species (Shrestha *et al.,* 2022). However, the occurrence of the genus *Cryptocoryne* is missing in any published literature (Rajbhandari & Rai, 2017; Shrestha *et al.,* 2018-2022). Therefore, the genus *Cryptocoryne* Fisch. ex Wydler, and the species *C. retrospiralis* (Roxb.) Kunth is herein, reported as a new record for the Araceae flora Nepal.

Taxonomic Treatment

Cryptocoryne retrospiralis (Roxb.) Kunth, Enum. Pl. 3: 12. 1841. *Ambrosina retrospiralis* Roxb., Hort. Bengal. 65. 1814. *Type*: INDIA, **Bombay,** Maharastra, 1867, *N.A. Dalzell s.n.* (Holo K [K000950317 digital image!]). **Figs. 1 & 2**

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Herbs, amphibious, monoecious, *c.* 25 cm tall. Rhizome prostrate, 4–5 cm long; roots fibrous. Leaves in a basal rosette; petiole sheathing; lamina linear, 8.5–14 × 0.8–1.3 cm, apex acuminate, margins wavy, green to pink. Inflorescence a spadix, solitary; peduncle short 0.6 – 1.7 cm long. Spathe 11–25.5 cm long, whitish outside; limb 3–6 cm long and *c.* 0.5 cm broad, spirally twisted, light green, elongated to variable spots on the wall, collar absent; tube9 – 23.5 cm long and *c.* 0.5 cm broad; kettle 1.5–3 cm long, swollen, constricted near male flower, inside purple; flap whitish with small purple spots. Spadix *c.* 1.6–1.8 cm long inside kettle. Female floriferous region at the baseconsist of a single whorl of 5–6 upright pistils; pistils syncarpous, light yellow; stigma globose, free; interstice naked with a fragmented stripe of pink color on the surface. Male floriferous region apical, yellowish, partially covered by flap arising from base of tube; male flowers naked. Capsules ovoid, 1.5–1.8 cm long; seeds many, ellipsoid, small.

Flowering & fruiting: Flowering November to March and Fruiting January to April.

Habitat: Amphibious, occurring submerged in running fresh water or on the bank.

Distribution: Nepal (new report), Bangladesh, India and Myanmar (POWO, 2023).

Specimens examined: NEPAL, **Province-1,** Morang District, Pathari-Sanischare Municipality–01, Bhulke, 26.667261 N, 87.561801 E, 120 m, 11.01.2023, *S. Rai, R. Ojha, B. Gautam & N. Koirala* BP03 (KATH, TUCH, TURH).

Conservation status: Globally the plant is categorized as Least Concern (Lansdown *et. al.,* 2023). In Nepal, the present species is only known from Bhulke, Wetland" and is under the threat due to habitat degradation by recreational activities in the wetland.

Fig. 1. Habitat of *Cryptocoryne retrospiralis* (Roxb.) Kunth.

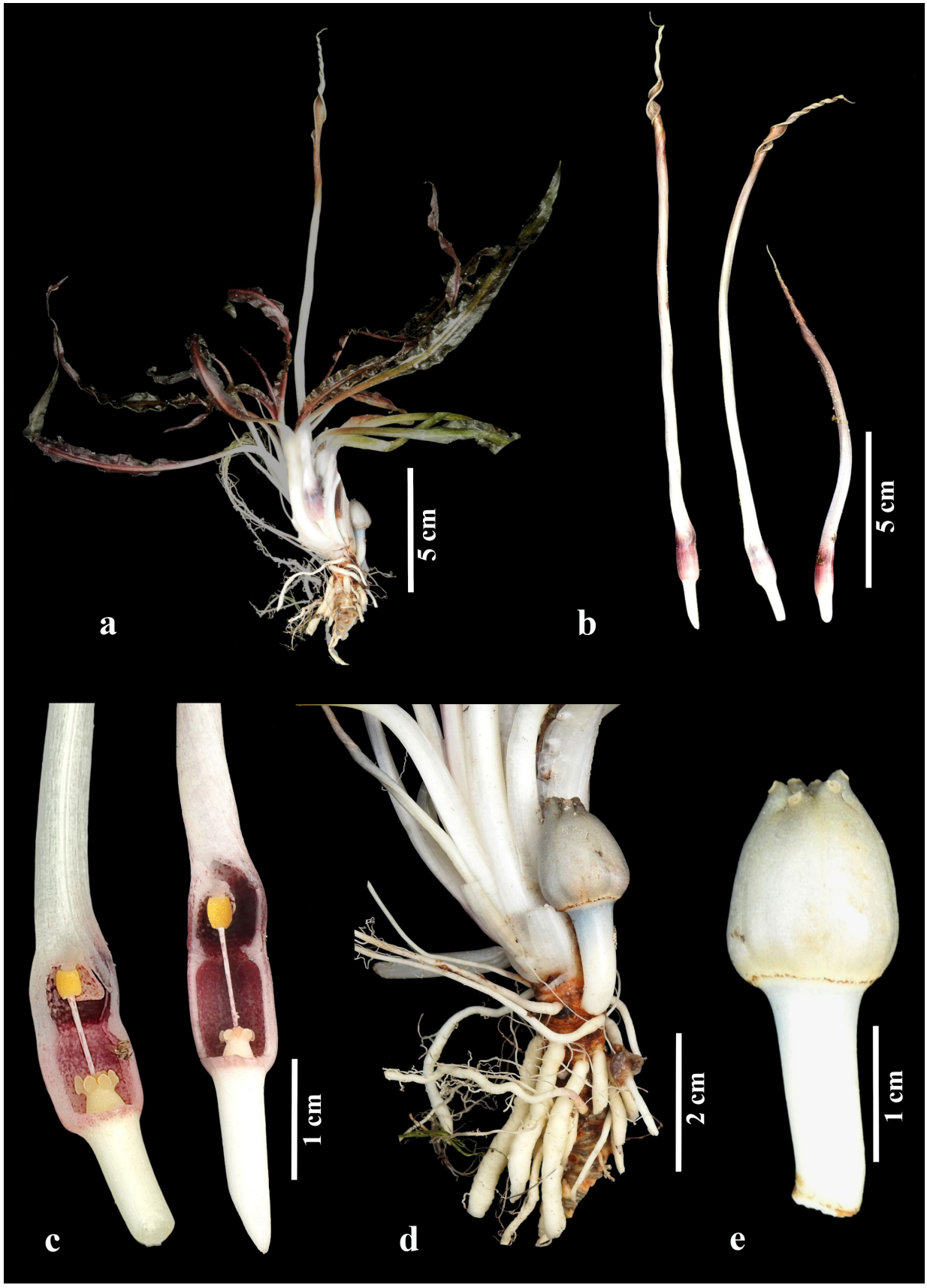

Fig. 2. *Cryptocoryne retrospiralis* (Roxb.) Kunth. **a**. An individual plant; **b**. Spathes; **c.** Spathe cut open showing male flowers, sterile zone and female flowers; **d**. Capsules arising from the rhizome; **e**. An Individual capsule.

Notes: This genus is easily differentiated among other genera of Araceae in Nepal having spiral shaped limb of spathe, long cylindrical tube formed by fused spathe, short rounded basal kettle without fusion of spathe enclosing small spidax and male flowers are covered by small flap. The lone species, *C. retrospiralis* recorded now is closely related *C. crispatula* var. *crispatula.* However, the leatter can be distinguished by longitudinal lines on the limb and denticulate margin of leaves as opposed to elongated to variable spots on tge limb and entire margins of leaves in *C. reteospiralis* (Bastmeijer, 2019).

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