

A note on occurrence of *Aponogeton crispus* Thunb (Aponogetonaceae) in Odisha

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Introduction

The Water Hawthorn family is monotypic; its single genus *Aponogeton* has 58 species which are palaeotropical in distribution (Yadav *et al.* 2015). The members of the family occur in the Old World tropics and in northern Australia, but concentrated to a large extent in Africa and Madagascar. The species of this family inhabit aquatic or marshy places (Cook 1996; Bruggen 1985).

In the revision of Indian Aponogetonaceae (Yadav & Gaikwad 2003) and further studies (Yadav *et al.* 2015) reported eight species of *Aponogeton* viz., *A. appendiculatus* H. Bruggen, *A. bruggenii* S.R. Yadav & Govekar, *A. crispus* Thunb., *A. lakhonensis* A. Camus, *A. natans* (L.) Engl. & K. Krause, *A. nateshii* S.R. Yadav., *A. satarensis* Sundararagh., A.R. Kulk. & S.R. Yadav, and *A. undulatus* Roxb. Of these, *A. appendiculatus*, *A. bruggenii*, *A. nateshii* and *A. satarensis* are endemic to India (Yadav & Gaikwad 2003, Yadav *et al.* 2015).

The present collection made by the authors during the ethnobotanical and floristic survey of Malkangiri district of Odisha which covers an area of 5791 km² lies between north latitudes of 17° 47'58" and 18° 44'58" and east longitudes 81° 23'23" and 82° 27'05" in the southern Eastern Ghats of India. The collected specimen is identified as *Aponogeton crispus* Thunb. through vetted study on specimen with existing herbarium specimens in Central National Herbarium (CAL) and related literature. In India, *A. crispus* is reported from the states of Andhra Pradesh, Karnataka, Kerala, Maharashtra, Tamil Nadu and West Bengal (Yadav & Gaikwad 2003). Saxena & Brahmam (1996) have

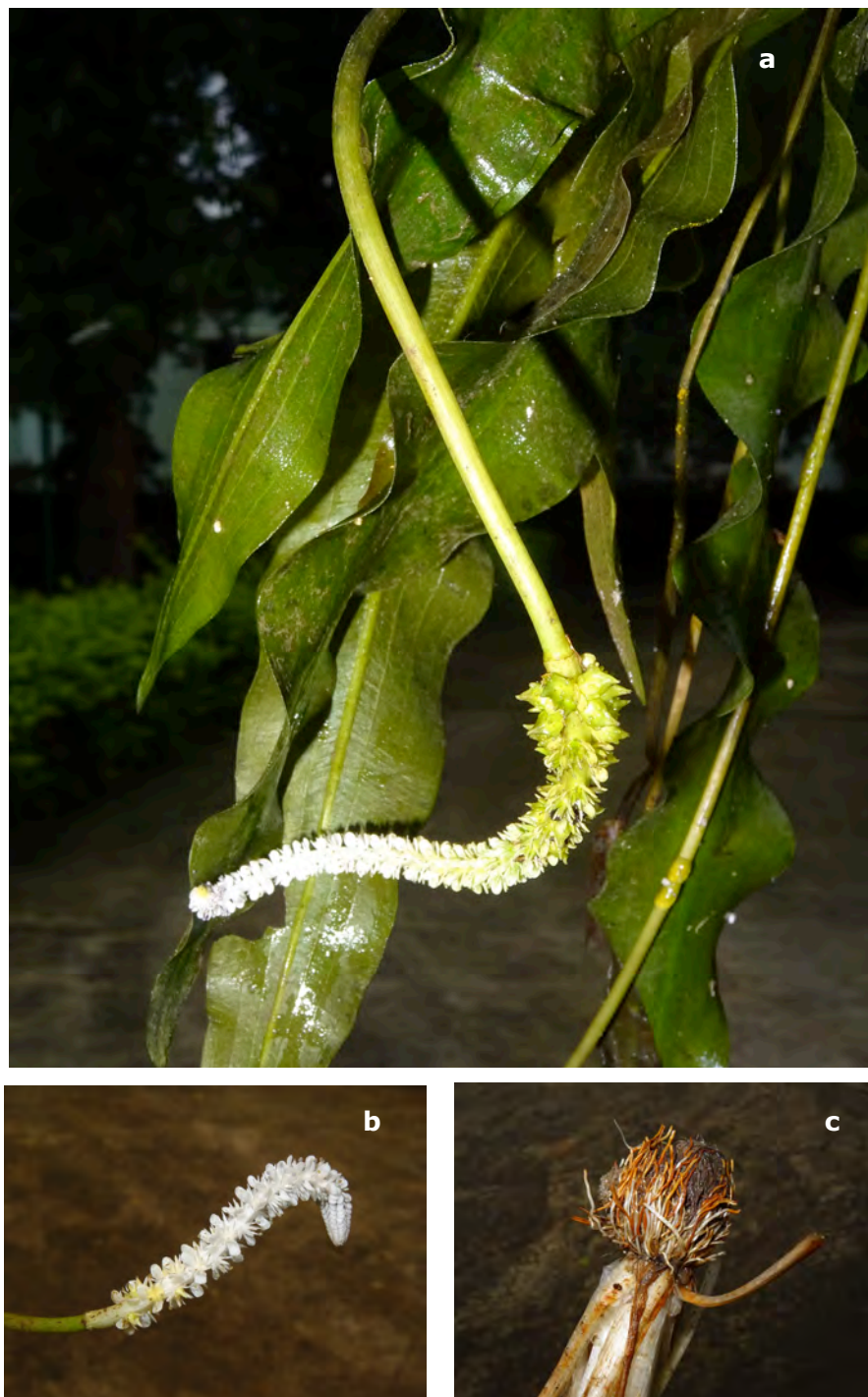


Fig 1. *Aponogeton crispus* Thunb., a. Submerged leaves with inflorescence, b. Close view of inflorescence, c. Tuberous roots

not recorded its occurrence in Odisha. Sahu *et al.* (2010) not listed *A. crispus* from Malkangiri District of Odisha. Hence the present report confirms its occurrence in Odisha. The voucher specimens of the same are

deposited at the herbarium of Central Botanical Laboratory

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Howrah. In this article a brief description of this species accompanied with photographs (Fig 1) is provided to facilitate easy identification along with note on flowering and fruiting, ecology and distribution.

Taxonomic Treatment

Aponogeton crispus Thunb., Nov. Gen. 4: 73. 1781 ('crispum'); Hook. f., Fl. Brit. Ind. 6: 564. 1893. p.p.; Trimen, Handb. Fl. Ceylon 4: 372. 1898, p.p.; Engl. & Krause in Engl. Pflanzenr. 24 (4, 13):12. 1906 (excel. descr.); Gamble, Fl. Madras 3: 1597. 1931 (Repr. ed 1115. 1957.) p.p.; Bruggen in Blumea 18: 481, f. 1, 6. 1970 & Biblio. Bot. 47. 1985 & Aqua Plant. 2: 31. 1990; S. Karthikeyan & al. Fl. Ind. Enum. Monocot. sr. 4. 4. 1989; Sundararagh. in Hajra & Sanjappa, Fasc. Fl. India. 22: 128. 1996; C. D. K. Cook, Aquat. Wetl. Pl. India. 48. 1996; Yadav & Gaikwad in *Bull. Bot. Survey of India* 45:57. 2003. Type: Ceylon, Thunberg s. n. (UPS, n. v.). *Aponogeton echinatus* Roxb., Fl. India 2:210. 1832 ('echinatum'); Hook. f., Fl. Brit. India. 6: 564. 1893; Subr. Aquat. Angiosp. 92. 1962; Bruggen in Blumea 18:483, f. 1, 8. 7, M. 2. 1970; C. J. Saldhana & Nicolson, Fl. Hassan: 635. f. 106. 1976; K. M. Matthew, Fl. Tamil Nadu Carnatic 3: 1713. 1983; Lakshmin. in B. D. Sharma & al. Fl. Maharashtra 1: 238. 1996.

Description

Monoecious, tuberiferous, perennial, aquatic herbs, c. 75 cm high. Tubers globose obovoid, c. 3 cm in diam.; roots slender, fibrous, from top of tubers. Leaves both submerged and floating. Submerged leaves very variable in shape and dimensions, petiolate; petioles c. 13 cm long, bluntly triangular, slender, brittle, sheathing at base; lamina c. 13 × 3.5 cm, oblong-lanceolate to elliptic, rounded or subcordate at base, obtuse at apex, flat or undulate or crisped at margin, main nerve prominent with 4-6 nerves on either side. Floating leaves petiolate; petioles c. 65 cm long, slender, terete, brittle, sheathing at base; lamina very variable, c. 18 × 4.5 cm, ovate-lanceolate, tapering above, rounded or blunt at apex, rounded or subcordate at base, main nerve prominent with 5-6 parallel nerves on either side. Spathe c. 2.5 cm acuminate, membranous, caducous. Penduncles up to 65 cm long, cylindric, widened above. Spike simple, c. 13.5 cm long, dense or lax flowered with flowers in all directions. Tepals 2, 2-2.3 × 0.8-1.2 mm obovate-spathulate rounded at apex, 1-nerved, white, pink or pale violet. Stamens 6, exerted; filaments c. 2.1 mm long, widened below; anthers 2-celled, dark violet, dehiscing longitudinally; pollen yellow. Carpels 3; stigma decurrent; ovary c. 0.5 × 0.6 mm; ovules 2 per carpel. Follicles c. 1.3 × 0.4 mm, beaked, smooth or echinate, 2-seeded; seeds c. 8 mm long, with single testa; embryo upto 7 × 5 mm; plumule attached at the base of the embryo, mostly

consisting of several leaflets and fitted in a wide or narrow groove.

Flowering & Fruiting: Throughout the year with a peak from August to November.

Ecology: Permanent fresh water lakes, ponds and pools.

Distribution: India (Andhra Pradesh, Karnataka, Kerala, Odisha, Maharashtra, Tamil Nadu and West Bengal), Sri Lanka

Specimen examined: Odisha; Malkangiri, 28.07.2015, Sujana K. A. & Dhole P. A. 37084 (CAL, BSI.)

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