

FOUR NEW RECORDS OF AROIDS FOR BANGLADESH

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Abstract

The paper deals with four taxa of the family Araceae as new records for Bangladesh, namely, *Aglaonema commutatum* Schott, *A. marantifolium* Blume, *Colocasia mannii* Hook. f. and *Remusatia vivipara* (Roxb.) Schott. An up-dated nomenclature, important synonyms, illustrated description, flowering and fruiting times, specimen citation, ecology and geographical distribution for each species have also been given.

Introduction

The family Araceae consists of 110 genera and 2500 species distributed mostly in the tropics and sub-tropics (Croat 1979). Prain (1903) and Hooker (1893) reported 27 and 30 species, respectively from the area that now comprises Bangladesh. During recent past extensive field trips made throughout the country have resulted in many new records of Araceae for Bangladesh (Ara 2000, 2001; Ara and Hassan 2003, 2005; Ara and Khatun 2002; Ara *et al.* 1998, 2001, 2002, 2003 2004, 2005; Uddin *et al.* 2001). Some recent collections from Madhupur (Mymensingh), Sherpur, Netrokona, Maulvi Bazar and Bandarban districts include the following species of this family namely *Aglaonema commutatum* Schott, *Aglaonema marantifolium* Blume, *Colocasia mannii* Hook. f. and *Remusatia vivipara* (Roxb.) Schott, that are new records for Bangladesh. The genus *Remusatia* Schott is also a new generic record for Bangladesh. None of the above mentioned species is found in the work of previous workers who published on the flora of this region, viz., Hooker (1893), Prain (1903), Heinig (1925), Calder *et al.* (1926), Sinclair (1955), Rao and Verma (1976), Huq and Khan (1984), Nicolson (1987), Karthikeyan *et al.* (1989), Khan *et al.* (1994), Noltie (1994), Mia and Khan (1995), Rahman and Uddin (1997), Uddin *et al.* (1998), Uddin and Rahman (1999), Rashid *et al.* (2000), Ara (2001), Khan and Huq (2001) and Rahman (2004a, 2004b).

Materials and Methods

The paper is based on the materials collected from different parts of the country during field trips made from 2000-2005, which are now preserved in the Bangladesh National Herbarium (DACB). The specimens have been identified with the help of Engler (1915), Nicolson (1969, 1987), Noltie (1994), Mayo (1985) and Rao and Verma (1976).

Correct names with important synonyms, description, specimen citation, notes on ecology, geographical distribution within and outside the country and illustration of each species have been prepared based on the fresh specimens.

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Description of the species

1. *Aglaonema commutatum* Schott Syn. Aroid. 123 (1856). Engler, Pflanzenr. 64 (IV. 23 Dc): 27 (1915); Nicolson, Smithsonian Contr. Bot. 1: 49 (1969); Jervis, *Aglaonema* Grower's Hand b. 11 (1980); Nicolson, Fl. Ceylon 6: 45 (1987); Noltie, Fl. Bhut. 131-132 (1994); *Aglaonema oblongifolium* sensu Alston in Trimen, Hand b. Fl. Ceylon. 6: 296 (1931), non Schott, 1829. (Fig. 1)

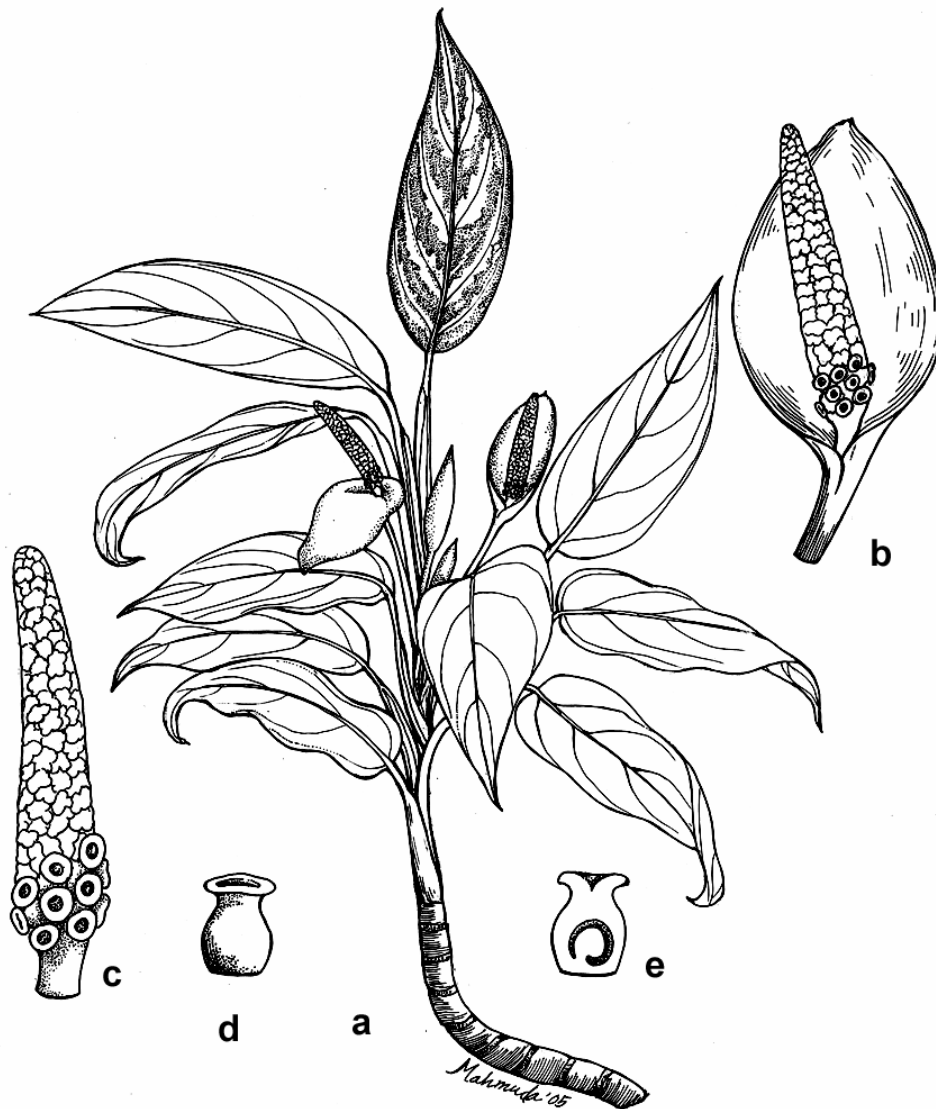


Fig. 1. *Aglaonema commutatum* Schott, (a) habit sketch ($\times 0.50$); (b) inflorescence ($\times 1$); (c) spadix ($\times 1$); (d) pistil ($\times 10$); (e) longitudinal section of pistil ($\times 10$).

An evergreen herb. Stem erect, becoming decumbent in older and larger specimens, 20-150 cm tall, 0.5-6.0 cm thick. Internodes 0.4-2.5 cm long. Petioles 6-25 cm long, sheathing for more than half its length, margins of sheath membranous but occasionally scarious. Leaf-blades usually narrowly oblong-elliptic to lanceolate, 10-30 × 2.5-12 cm, slightly asymmetric, shortly acuminate, base oblique to rounded; pale variegation along the primary lateral veins; venation differentiated into 4-7 primary lateral veins diverging from the midrib at 20-45-70; texture coriaceous. Peduncle solitary to 3 together, 4.5-20 cm long. Spathe 3-7 × 2.8-5 cm, light green, shorter than petiole, decurrent for 0.4-1.2 cm. Spadix stipitate for 0.4-1.0 cm, completely free from spathe, 2-7 cm long, usually at least 1 cm short of spathe apex but occasionally equaling it; pistillate portion 0.3-1.0 cm long, pistils few, 10-18; staminate portion 1.5-6 × 0.4-0.6 cm. Ovary ovoid or subglobose, 1-locular, ovule 1, anatropous, placenta basal, stylar region short, thick, stigma broad, discoid, concave centrally. Fruits turning yellow, then bright red, ellipsoidal to obovoid, 1.5-2 × 0.4-1.5 cm. Flowering and fruiting time : June to September.

Specimens examined: **Bandarban** district: Udalbungia, Sapchari hill, 20.09.2004, Hosne Ara HA 1164 (DACB); **Maulvi Bazar** district: Adampur beat, Kawargola forest, 03.07.2005, Hosne Ara HA 1767 (DACB); **Sherpur** district: Samaschura beat, Madhutilla Eco Park, 23.06.2004, Hosne Ara HA 1068 (DACB).

Ecology : In shady places of forest near streams.

Geographical distribution : India, the Philippines and north-eastern Celebes.

Note: So far two species of *Aglaonema*, namely, *A. hookerianum* Schott and *A. modestum* Schott ex Engler have been reported from Bangladesh (Ara 2001 and Ara *et al.* 2005). Newly reported *A. commutatum* Schott differs from these two by its leaves with pale variegation along the primary lateral veins and the spadix a bit shorter or equaling the spathe.

2. *Aglaonema marantifolium* Blume in Rumphia 1: 153 (1835), t. 66. Engler in Engler, Pflanzenr. 64 (IV. 23 Dc): 26-27 (1915); Nicolson, Smithsonian Contr. Bot. 1: 47-49 (1969); *Calla oblongifolia* Roxburgh, Fl. Ind. 3: 516 (1832); Wight Ic. t. 806 (1844); *Aglaonema oblongifolium* Schottin Wien., Zsitschr. iii: 892 (1829). (**Fig. 2**)

Stem erect, 1-3 cm thick, internodes 2 cm long. Petiole 18-25 cm long, sheaths with membranous margins, 11-20 cm long. Leaf blade narrowly oblong, narrowly elliptic or oblanceolate, 22-35 cm long, 7.5-15 cm wide, base obtuse to subrounded, apex acuminate, often apiculate, variegation none, venation undifferentiated to weakly differentiated into 5-8 primary lateral veins diverging from the midrib, texture coriaceous. Peduncles 2-5 together, rarely solitary, 10-15 cm long. Spathe green, turning yellow with age, not differentiated into a tube and blade, 4-7 cm long. Stipe 0.7-1.5 cm long. Spadix shorter than spathe, pistillate portion 0.2-0.8 cm long, pistils 10-20, the pistil with broad yellow stigma, the style distinctly contracted; staminate portion 1.2-2.7 cm long, stamens free, filaments usually distinct. Ovary subglobose, 1-locular, ovule-1,

anatropous, basal placentation, style short, stigma broad, discoid. Fruits becoming bright red, 1.5-3.0 cm long, 0.7-1.7 cm wide. Flowering and fruiting time: Apparently non seasonal.

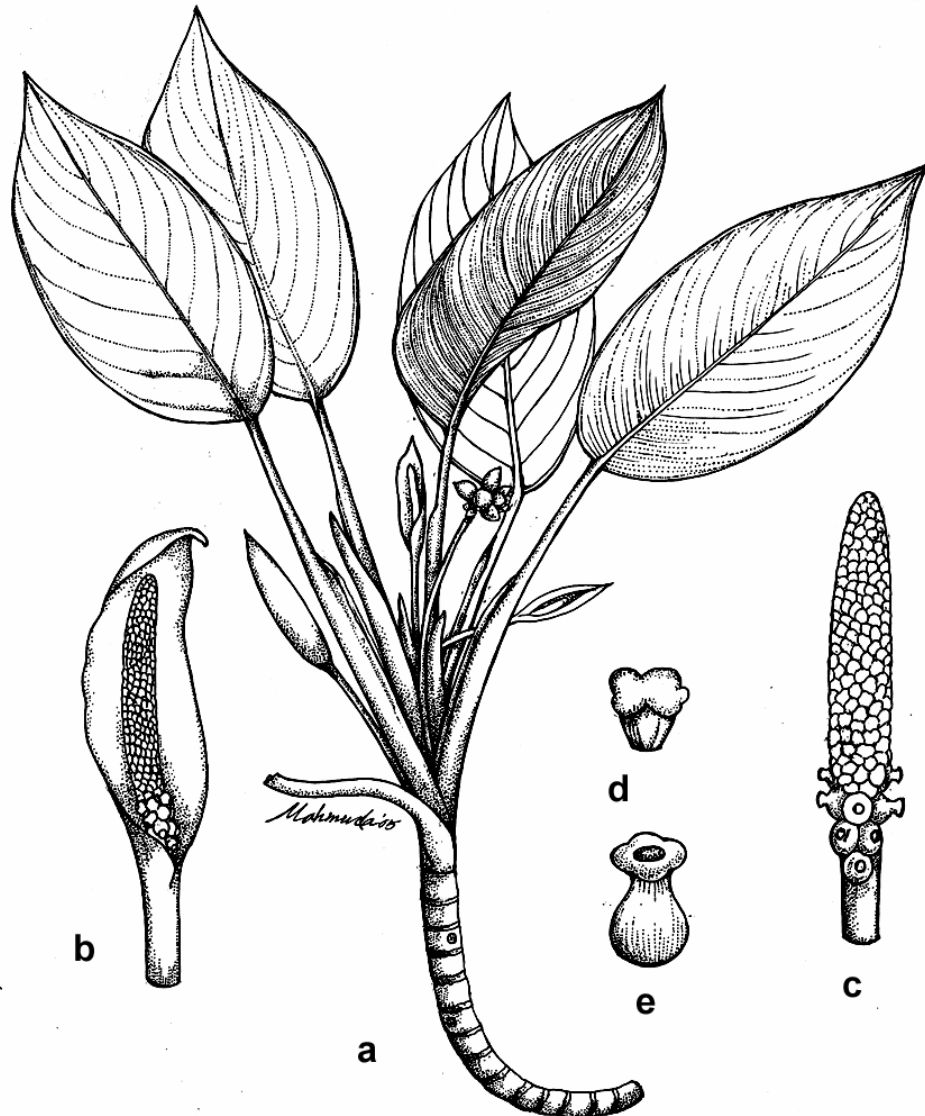


Fig. 2. *Aglaonema marantifolium* Blume, (a) habit sketch ($\times 0.28$); (b) inflouescence ($\times 1$); (c) spadix ($\times 1$); (d) top view of synandrium ($\times 10$); (e) pistil ($\times 12$).

Specimens examined: **Mymensingh** district: Madhupur forest, 25.05.2000, Hosne Ara HA 45 (DACB); Bangladesh National Herbarium (originally collected from Madhupur, HA 45 and planted in BNH compound), 15.04.2005, Hosne Ara HA 1462 (DACB).

Ecology : Grows in shady and damp places as forest undergrowth.

Geographical distribution : Moluccas through New Guinea.

Note: *Aglaonema marantifolium* Blume differs from *A. commutatum* Schott by leaf blade which is non-variegated along the primary lateral veins and spadix which is always shorter than spathe (in case of former).

3. ***Colocasia mannii*** Hook. f., Fl. Brit. Ind. 6: 524 (1893); Rao and Verma, Bull. Bot. Surv. Ind. 18 (1-4): 27 (1976). **(Fig.3)**

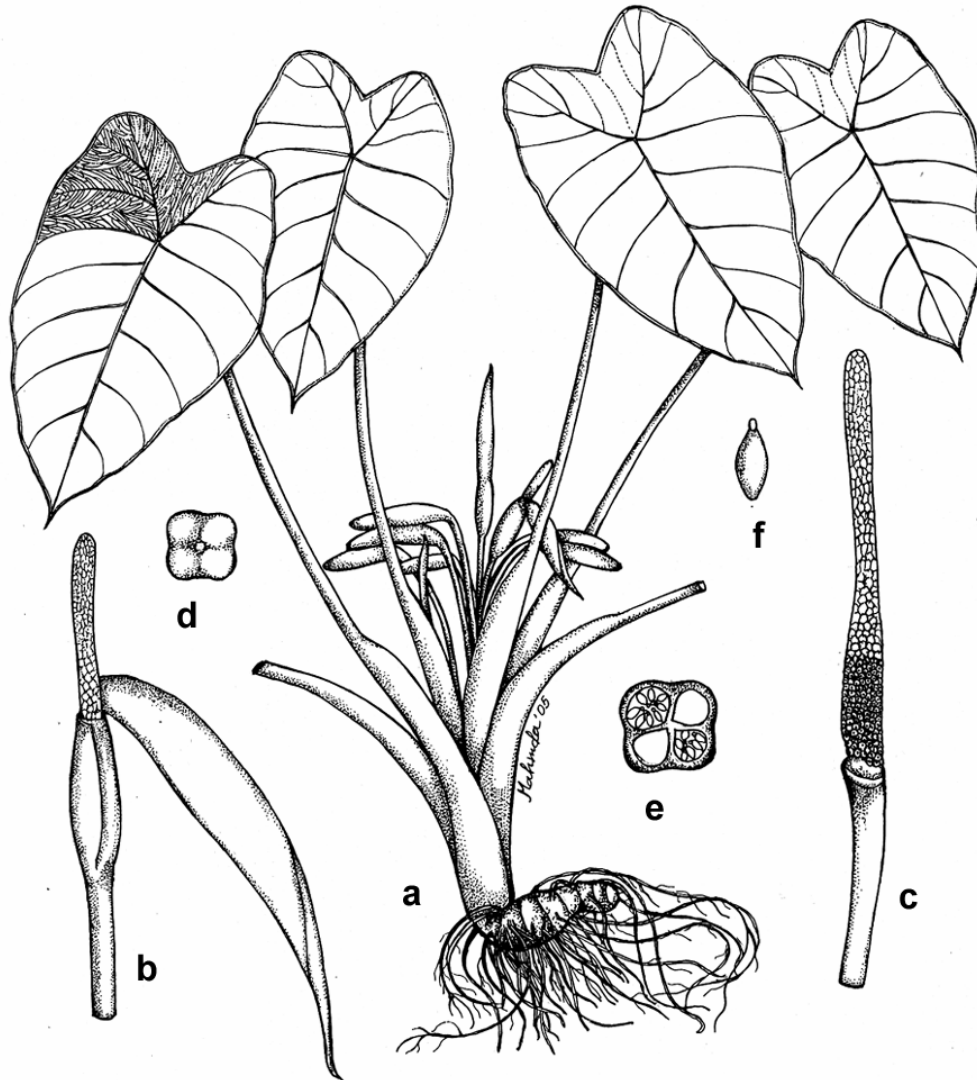


Fig. 3. *Colocasia mannii* Hook. f. (a) habit sketch ($\times 0.14$); (b) inflorescence ($\times 0.43$); (c) spadix ($\times 0.59$); (d) top view of pistil ($\times 5$); (e) transverse section of pistil ($\times 8$); (f) ovule ($\times 10$).

Herbs. Rhizome 5-6 cm long, 3-4 cm in diam., stolons absent. Leaves several together; petiole reddish green, 50-87 cm long, sheathing in the lower 1/3; blades oblong-ovate, 25-41 x 13.5-25 cm, sagittate with a broad sinus, tip acute, peltate, upper surface glossy green, lower surface pale green; primary lateral veins 6-7 pairs, pale green. Inflorescences produced in both juvenile and adult plants, solitary or paired; peduncles almost completely enclosed in sheath of subtending leaf, when paired the sequence perpendicular to the circumference of the stem with the younger one further out, 30-40 cm long. Spathe 18-23.5 cm long, tube 3-5 cm long, light green, limb narrowly oblong-cymbiform, 15-18.5 cm long, 7.7 cm wide, reflexed. Spadix shorter than spathe, 9-11 cm long; female zone 3.0-3.8 cm long, 1 cm diam.; pistils numerous; ovaries globose, green, incompletely 3-5 locular with parietal placentation and numerous oval shaped ovules; stigma sessile, discoid, whitish, 1mm diam.; sterile interstice 3 cm long, yellow; male zone 3.0 - 4.2 cm long, 0.5 cm diam., tip rounded, synandria ivory, irregularly rhombohexagonal, 8-10 androus, 1mm diam., yellow; appendix absent. Flowering and fruiting time: June to July.

Specimens examined: **Maulvi Bazar** district: Gazipur beat, Harargonj reserve forest, 21. 05. 2005, Hosne Ara HA 1737 (DACB); 05.07.2005, Hosne Ara HA 1807 (DACB).

Ecology: Grows in shady and moist places of hill slope of rain forest.

Geographical distribution : Assam (India) and Sylhet (Bangladesh).

Note: *Colocasia mannii* Hook. f. can easily be separated from all other *Colocasia* species so far reported from Bangladesh (Ara and Hassan, 2005) by the presence of the following characters together: tuber short, lack of stolons, narrowly oblong-cymbiform spathe limb and absence of appendix.

- 4. Remusatia vivipara** (Roxb.) Schott in Schott and Endlicher, Melet. Bot. 18 (1832). Kunth, Enum. Pl. 3: 36 (1841); Schott, Syn Aroid. 43 (1856); Gen. Aroid. t. 36 (1858); Prodr. Syst. Aroid. 137 (1860); Hook. f., Fl. Brit. Ind. 6: 521 (1893); Krause in Engler, Pflanzenr. 71 (IV. 23 E): 16 (1920); Haines, Bot. Bihar and Orissa: 907 (1924); Fischer in Gamble, Fl. Press. Madras 1583 (1931), repr. ed. 2, 3: 1104 (1967); Prain, Beng. Pl., repr. ed., 2: 837 (1963); Nicolson in Saldanha and Nicolson, Fl. Hassan Dist.: 788 (1976); Rao and Verma, Bull. Bot. Surv. Ind. 18 (1-4): 24 (1976); Mayo, Fl. Trop. E. Africa : 40-42 (1985); Nicolson, Fl. Cylon 6: 49-50 (1987); Noltie, Fl. Bhut. 3 (1): 133-136 (1994); *Arum viviparum* Roxburgh, Hort. Beng. 65 (1814), ('vivaparium'), Fl. Ind. 3: 496 (1832); Wight, Ic. Pl. Ind. Or. 3: 6, t. 798 (1844); *Caladium viviparum* (Roxb.) Loddiges, Bot. Cab. 3: t. 281 (1818).

(Fig. 4)

Corm 2.5-5.0 cm in diameter 1.5-4 cm thick, pink-red outside, pinkish white within. Bulbiliferous shoots appearing in the vegetative phase but persisting in a more or less decayed state till the next flowering phase, 10-30 cm long, 5-7 cm thick; bulbils clustered, 4-5 mm long. Petioles upto 30 cm long, very shortly sheathing at base. Leaf blade broadly ovate, peltate, 12-42 x 8-30 cm, acuminate, cordate; nerves 3-4 on either side of the midrib and 2-3 from the basal costae. Flowering very rare and usually

produced before leaf. Peduncle 6-20 cm long, 5-8 mm diam., surrounded by about 7 cataphylls, cataphylls exceeding the peduncle. Spathe about 17 cm long, tube ovoid, green, 3-5 cm long; limb at first erect, later reflexed and ultimately deciduous, yellow, broadly obovate, abruptly apiculate, about 5.5-13 cm long, 9.5 cm wide; tube and limb separated by a constriction. Spadix slightly exceeding the spathe tube, sessile, 5-7 cm long; male and female floriferous zones separated by 1.5-2 cm long neuter zone; male

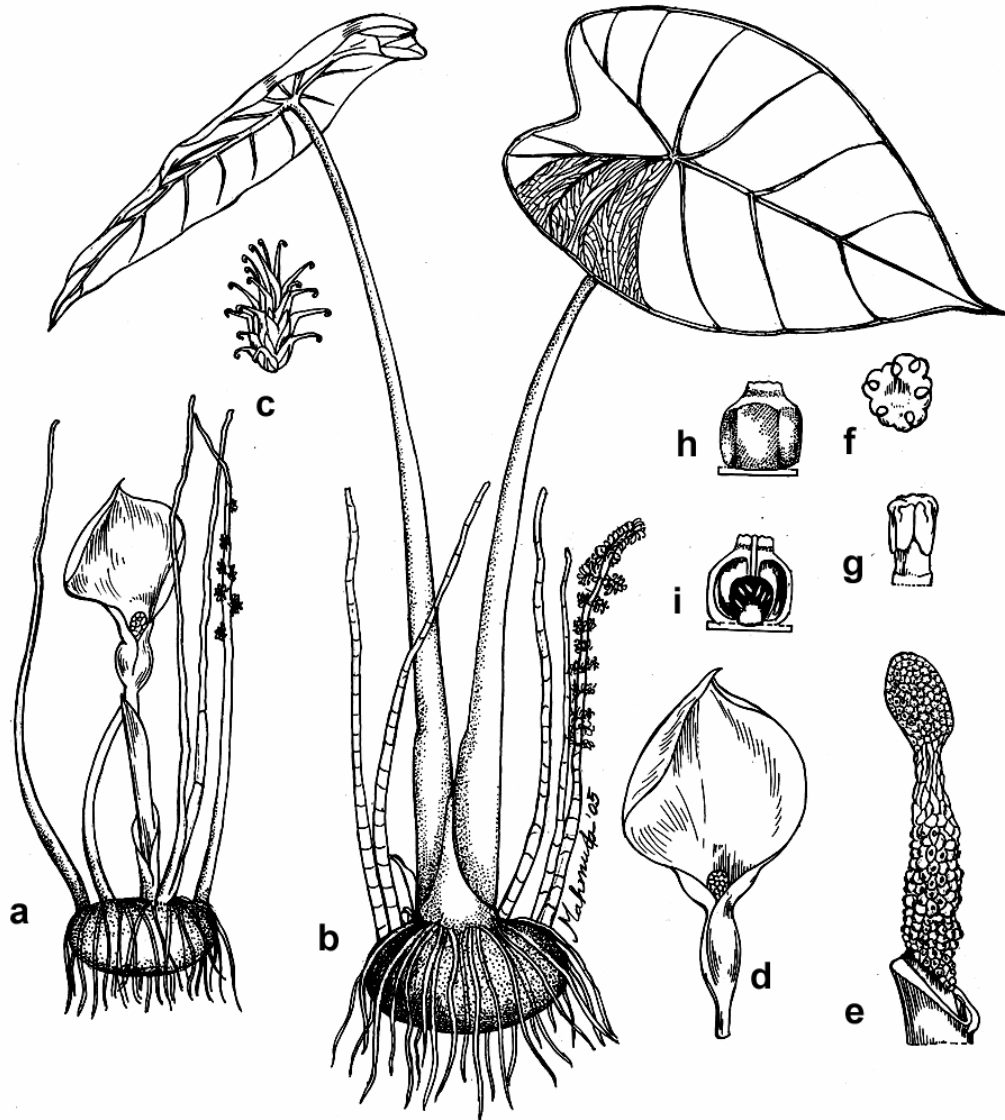


Fig. 4. *Remusatia vivipara* (Roxb.) Schott. (a) habit in flower with bulbiliferous shoots ($\times 0.23$); (b) habit with bulbiliferous shoots ($\times 0.4$); (c) tubercle ($\times 4$); (d) inflorescence ($\times 0.29$); (e) spadix ($\times 0.71$); (f) top view of synandrium ($\times 10$); (g) side view of synandrium ($\times 6$); (h) pistil ($\times 6$); (i) longitudinal section of pistil ($\times 6$).

zone clavate, 1-1.5 cm long, 0.5 cm in diameter.; female zone subcylindric, green, 2 cm long, 0.8 cm in diameter. Ovary ovoid, unilocular with numerous, orthotropous ovules on 3-4 parietal placentae, stigma sessile, discoid; staminate flowers represented by short-stalked synandria of 4-6 anthers, cream coloured, dehiscing by apical pores. Flowering and fruiting time: March to May.

Specimens examined: **Maulvi Bazar** district: Adampur beat, Kawargola forest, 03.07.2005, Hosne Ara HA 1770 (DACB); 07.09.2005, Hosne Ara HA 2214 (DACB).

Ecology: Grows in subtropical forests and midland in moist clefts of trees or rocks leaf.

Geographical distribution : Indo-Malesia, Africa, Madagascar and Australia.

Note: This species can easily be distinguished from all other species by its epiphytic habit and stout, simple erect bulbiferous stolons produced from the corm.

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