

## THREE NEW RECORDS OF AROIDS (ARACEAE) FOR BANGLADESH

HOSNE ARA<sup>1</sup> AND MD. ABUL HASSAN<sup>2</sup>

*Bangladesh National Herbarium, Chiriakhana Road, Mirpur-1,  
Dhaka-1216, Bangladesh*

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### Abstract

Three aroid species, namely *Colocasia gigantea* (Blume) Hook. f., *Epipremnum pinnatum* (L.) Engl. and *Scindapsus perakensis* Hook. f. under the family Araceae are recorded for the first time for Bangladesh. An updated nomenclature including important synonyms, illustrated descriptions, flowering and fruiting times, specimens examined, ecology, geographical distribution, occurrence within Bangladesh and uses for each species have also been provided.

### Introduction

Araceae is a family of about 110 genera and 2500 species (Croat 1979) distributed mostly in the tropics and subtropics of both the hemispheres. Recent publications indicate that about 65 species of the family Araceae have so far been identified in Bangladesh (Ara 2001, Ara and Hassan 2005 a,b, Ara *et al.* 2004, 2005 a,b). The list, probably, is not yet complete. Field collections from Rangamati, Khagrachari, Bandarban, Sylhet and Maulvi Bazar districts indicate that three species of the family, namely *Colocasia gigantea* (Blume) Hook. f., *Epipremnum pinnatum* (L.) Engl. and *Scindapsus perakensis* Hook. f. were not reported from the territory of Bangladesh by many previous workers, for example, 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). The genus *Epipremnum* Schott has not been reported previously from Bangladesh. So, it is a new generic record for the country.

### Materials and Methods

The plant materials have been collected from different forest areas of Bandarban, Khagrachari, Maulvi Bazar, Rangamati and Sylhet districts during several field trips between 1998 and 2004. The specimens, after study, have been preserved in the Bangladesh National Herbarium (DACB). The published articles of Engler and Krause (1908, 1920), Li Heng (1979), Nicolson (1979, 1987), Karthikeyan (1989), Hay (1996) and Boyce (1998) on the family Araceae helped the authors to identify the three newly recorded species.

<sup>1</sup>Corresponding author. <sup>2</sup>Department of Botany, University of Dhaka, Dhaka-1000, Bangladesh.

In this communication, detailed taxonomic description, correct names with important synonyms, specimen citation, notes on ecology, geographical distribution within and outside the country, economic importance and illustration of each species have been presented based on the fresh specimens. All the specimens examined including the types have been cited.

### Description of the species

1. **Colocasia gigantea** (Blume) Hook. f., Fl. Brit. Ind. 6: 524 (1893). *Caladium giganteum* Blume ex Hassk, Cat. Hort. Bogor. 56 (1844); *Leucocasia gigantea* (Blume) Schott, Oesterr. Bot. Wochenbl. 7: 34 (1857); Gen. Aroid. 38 (1859), et Prodr. 141 (1860); *Colocasia indica* Engler in DC., Monogr. Phan. 2: 494 (1879), et Pflanzenr. 71 (IV. 23 E): 69 (1920), p.p., non Kunth. Enum. 3: 39 (1854). (Fig. 1)

*Type:* Indonesia, Java. *Blume s.n.* (L!, holo).

*Bangla name:* *Salad Kachu*

Perennial, evergreen herbs with stout short above-ground stem, creeping to decumbent, clothed with marcescent leaf bases, 20-50 cm long, 4-6 cm diam., stolons 2-4, trailing horizontally, branching, thin, pale green, 30-40 cm long, 0.4-0.5 cm diam. Leaves several together; petiole light green, pruinose, 80-120 cm long, lower half of the length sheathing; blade ovate-cordate, apex short acuminate, undulate along the margin, base deeply cordate, sinus open, peltate, 50-58 cm long, 30-52 cm wide, green or pale green above, glaucous below; primary lateral veins 6-7 pairs. Inflorescences 5-8 in each axil of leaves. Peduncle cylindrical, shorter than petiole, 30-54 cm long, 1-2 cm diam, each one with a membranous cataphyll, nearly equalling the length of peduncle. Spathe white, oblong, distinctly constricted, 12-24 cm long, tube light green, ellipsoid, inrolled, 3.5-5 cm long; limb white, erect, 8.5-19 cm long, boat-shaped, 3-5.5 cm diam., deciduous. Spadix sessile, shorter than spathe, 9-20 cm long, female portion yellow, conic, 1.5-2 cm long, 1.5-2 diam.; ovaries numerous, narrow, ovules scattered, parietal placentation; style distinct but very short, less than 0.5 mm long; stigma light yellow, 2 mm diam.; sterile portion slender, 3-4.5 cm long; male portion 5-14 cm long, 1.1 cm diam.; appendix very short, acute, 1-5 mm long, surface slightly and irregularly rugose. Flowers unisexual, naked; berry oblong, 5 mm; seeds many, spindle-shaped, with many distinct longitudinal striae. Flowering and fruiting time: April to September. Flowering of the plant is not an annual event rather it takes an interval of several (6 to 7) years.

*Specimens examined:* **Khagrachari:** Jamtoli, 12. 07. 2003, Hosne Ara and Sardar Nasir Uddin HA 483 (DACB); **Rangamati:** Kaptai, Shilsori, 08.07.2003, Hosne Ara and Sardar Nasir Uddin HA 390 (DACB); Rajbari area, 18.09.2004, Hosne Ara HA 1119 (DACB); **Bandarban:** Betchari forest area, 22. 09. 2004, Hosne Ara HA 1355 (DACB).

*Ecology:* Grows in shady places of hill slope and foot hill.

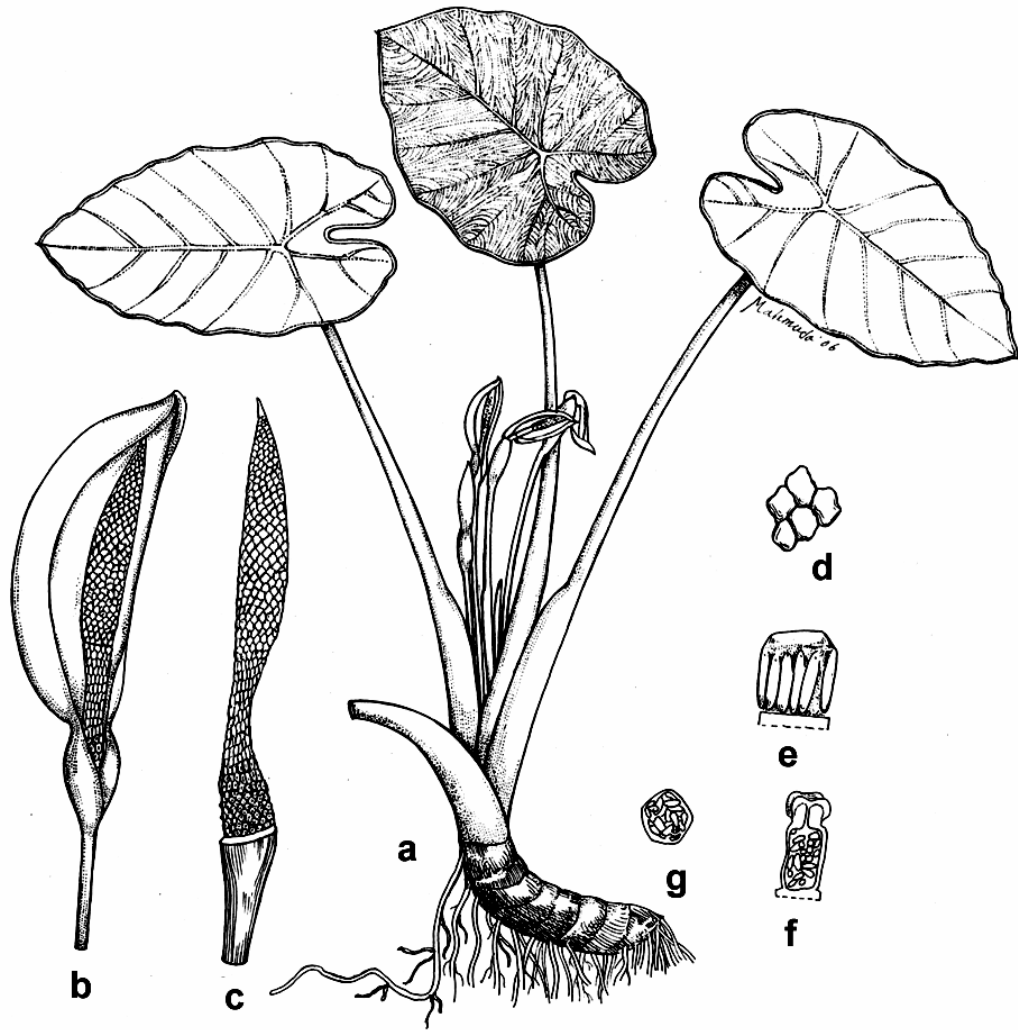


Fig. 1. *Colocasia gigantea* (Blume) Hook. f. (a) habit sketch ( $\times 0.9$ ), (b) inflorescence ( $\times 0.5$ ), (c) spadix ( $\times 0.5$ ), (d) synandria ( $\times 3$ ), (e) synandrium, side view ( $\times 8$ ), (f) longitudinal section of gynoecium ( $\times 4$ ), (g) transverse section of gynoecium ( $\times 4$ ).

*Geographical distribution:* Native of southern China and Indo-China to the Malay Peninsula, Sumatra and Java.

*Note:* *Colocasia gigantea* can easily be distinguished from all other *Colocasia* species so far reported from Bangladesh (Ara and Hassan 2005a,b) by the presence of the following characters together: petiole pruinose, leaves very large, ovate-cordate, spathe 12-24 cm long, limb oblong or elliptic-oblong, cymbiform, cuspidate and very short appendage of the spadix.

*Uses:* The petiole of the plant is used as one of the ingredients of "Salad". Its leaves and petioles are used in making delicious curry. The petioles and leaves of the plant contain iron, calcium and vitamin-C. In Bangladesh, children and women generally suffer from the deficiency of iron, calcium and vitamin-C and, as such, the plant may be consumed by the common people to supplement as a source of these minerals or vitamin. The plant should be cultivated in kitchen garden of each family for its ready availability. It can also be cultivated on a commercial basis for meeting the demand of domestic consumption as well as for exporting to different countries that will bring foreign exchange for the country.

2. ***Epipremnum pinnatum*** (L.) Engl. in Engl. & Krause in Pflanzenr. 37 (IV. 23B): 60 (1908). Merr., Interpr. Herb. Amboin. 127 (1917); *Pothos pinnata* L., Sp. Pl., ed. 2: 1374 (1763); Roxb., Fl. Ind. 1: 456 (1820); *Rhaphidophora pinnata* (L.) Schott, Bonplandia 5: 45 (1857); Backer & Bakh., Fl. Java 3: 107 (1968); *Epipremnum mirabile* Schott, Gen. Aroid. t. 79 (1858); Hook. f., Fl. Brit. Ind. 6: 549 (1893).

(Fig. 2)

*Type:* Amboina. Illustr. published as *Adpendix laciniata* Rumph., Herb. Amboin. 5: 489, t. 183, f. 2 (1747).

Large, root-climber to 15m. Pre-adult plant usually forming modest terrestrial colony. Adult plant with stem 2.5-4 cm diam., internodes 2-25 cm long, branched. Petiole 19.5-60 cm × 3-13 mm, smooth, dark-green, pulvinate at both ends, sheath running to upper pulvinus and soon disintegrating to leave a reticulate network of intertwined venation. Leaf blade subleathery, oblong, base wide cordate, 10-93 × 5-60 cm, regularly pinnatifid to (rarely) entire, ovate to oblong-elliptic in outline, apex acute to acuminate, base rounded to slightly cordate, divisions pinnatifid to pinnatisect, pinnae 1.2-6.5 cm wide, 12-13 per side, narrowly lanceolate to somewhat falcate, with 1-3 equally strong, parallel costae, apex truncate to acute, the terminal one usually subrhomboid, dark-green above, paler beneath. Peduncle 5.5-21.5 × 0.4-1.0 cm, stout, terete, pale-green, enveloped by sheath, finally withering. Spathe canoe-shaped, 7-18 × 3-10 cm, green outside, yellow inside, apex acuminate. Spadix bisexual, 8.5-19.5 × 1.1-3.5 cm, sessile, cylindrical, bluntly tapering towards the apex, base slightly obliquely inserted, green. Flowers 3-7 mm diam., ovary 4-12 × 2-7 mm, cylindrical, basal part slightly compressed; ovules 2 or 3; stylar region 3-7 × 1.5-4 mm, trapezoid, apex flattened; stigma linear, 2-6 × 0.1-0.5 mm, longitudinal; stamens 4; filaments 5 × 1 mm; anthers narrowly ellipsoid, 1.5-2 × 0.75-1 mm. Fruit green. Seeds reniform, smooth, 4.5 × 3.5 mm, pale to brown. Flowering and fruiting time: April to May.

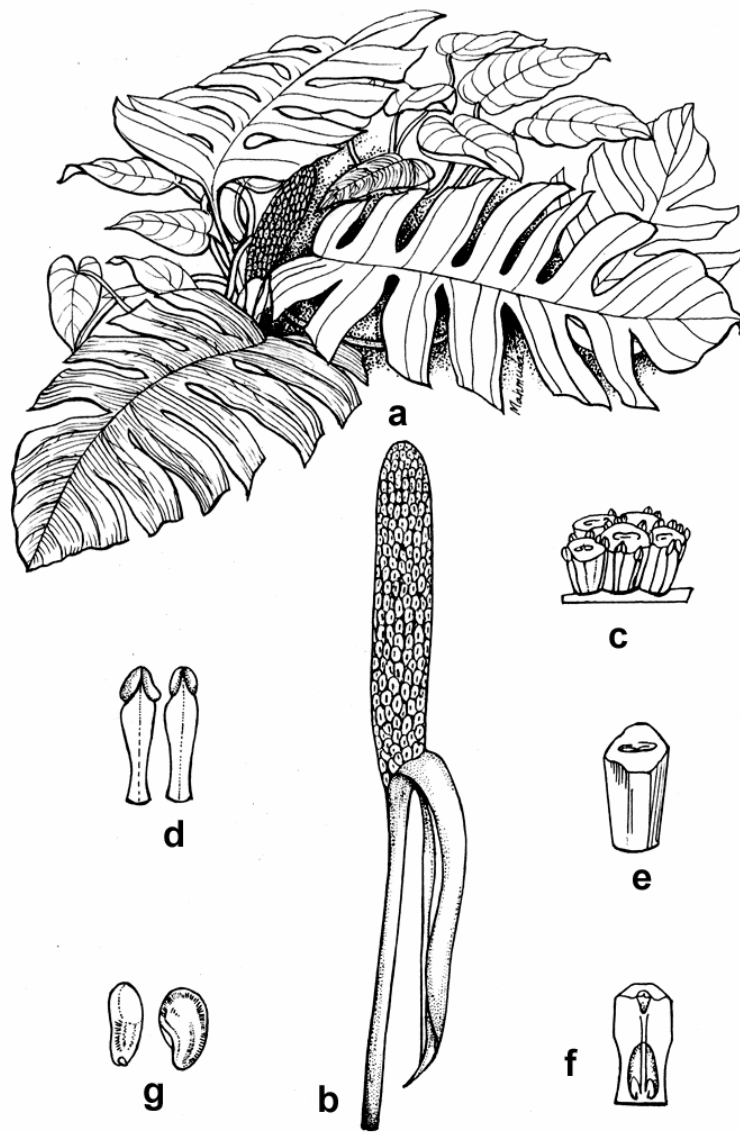


Fig. 2. *Epipremnum pinnatum* (L.) Engl. (a) habit sketch ( $\times 0.005$ ), (b) inflorescence ( $\times 0.25$ ), (c) portion of spadix showing the arrangement of bisexual flowers ( $\times 0.5$ ), (d) stamens ( $\times 2$ ), (e) pistil ( $\times 2$ ), (f) longitudinal section of pistil ( $\times 2$ ), (g) seeds ( $\times 2$ ).

*Specimens examined:* **Sylhet:** Tamabil-Jafflong, 04.06.1998, Hosne Ara 28 (DACB); **Dhaka:** Khilgaon (Cultivated), 30.04.2006, Hosne Ara 2628 (DACB).

*Ecology:* Creeping on trees or on stone walls in shady and moist conditions in the tropical rain forests or deciduous forests.

*Geographical distribution:* Southeastern Asia through Malesia to Oceania.

*Note:* The species is recognized by its high-climbing habit; sheath soon withering, but leaving a mat of intertwined venation; blade pinnatisect (adult) to entire (juvenile), to 1 x 0.5 m., often with tiny perforations along midrib; spathe creamy, soon withering; spadix sessile, to 17 x 3 cm.

*Uses:* This plant serves as an useful medicine in China for treating abscesses, traumatic injury and rheumatic arthralgia (Li Heng 1979). In Fiji, local people used to prepare a medicine by mixing crushed leaves and stems of *Epipremnum pinnatum* and *Premna taitensis* (Verbenaceae). The medicine, known as "tonga," cures "aches". *Epipremnum pinnatum* is also cultivated as an ornamental plant in the Pacific east of the Fijian region, as well as in other parts of the world (Nicolson 1979).

3. **Scindapsus perakensis** Hook. f., Fl. Brit. Ind. 6: 542 (1893). Engler and Krause, in Engler, Pflanzenr. 37 (IV. 23B): 75-76 (1906); Ridley, Fl. Malay Peninsula 116-118 (1925). **(Fig. 3)**

*Type* : Scortechini (BM), Kunstler 5306 (K), 10692 (K) (both as 'Dr. King's collector').

Stem 10-12 m long, 5-7 cm broad, very stout. Leaves many, 21-30 x 6-9 cm, broadly or narrowly oblong, rarely ovate or sublanceolate, acuminate, elliptic or nearly ovate, thinly coriaceous, base acute or rounded, primary and secondary nerves undistinguishable above, primary nerves distinct beneath, nervules trabeculate. Petioles 10-15 cm long, broadly winged to base. Inflorescence solitary. Peduncle shorter than the petiole, 8-10 cm long, very stout. Spathe creamy white, ovate, cuspidate, leathery, 8 cm long. Spadix longer than spathe, 10-15 x 2 cm, cylindrical or subclavate. Fruiting spadix 4 cm in diam. Flowers bisexual. Stamens 4, free. Ovary 1-locular, anatropous, basal placentation, stylar region well-developed, stigma linear. Fruit slaty blue. Seed lenticular black. Flowering and fruiting time: May to October.

*Specimens examined:* **Maulvi Bazar:** Madhabkundo, 05.06. 1998, Hosne Ara HA 39; **Sherpur:** Zhinaigati Thana, Rangtia forest, 22.06.2004, Hosne Ara HA 1031 (DACB); Bangladesh National Herbarium (Cultivated), 07.05.2006, Hosne Ara HA 2629 (DACB).

*Ecology:* Climber on trees, in shady and moist places in the forest.

*Geographical distribution:* Malaysia.

*Note:* Earlier three species of *Scindapsus*, namely *S. officinalis* (Roxb.) Schott, *S. pictus* Hassk., and *S. scortechinii* Hook. f. have been reported within the Bangladesh territory by Ara (2001) and Ara *et al.* (2004). *Scindapsus perakensis* differs from the above-mentioned three species in its oblong-lanceolate or falcately lanceolate, acuminate, thinly coriaceous leaves with acute or rounded base, 21-30 cm long; in broad petioles, 10-15 cm long; in 8-10 cm long peduncle, very stout and in spadix longer than spathe.

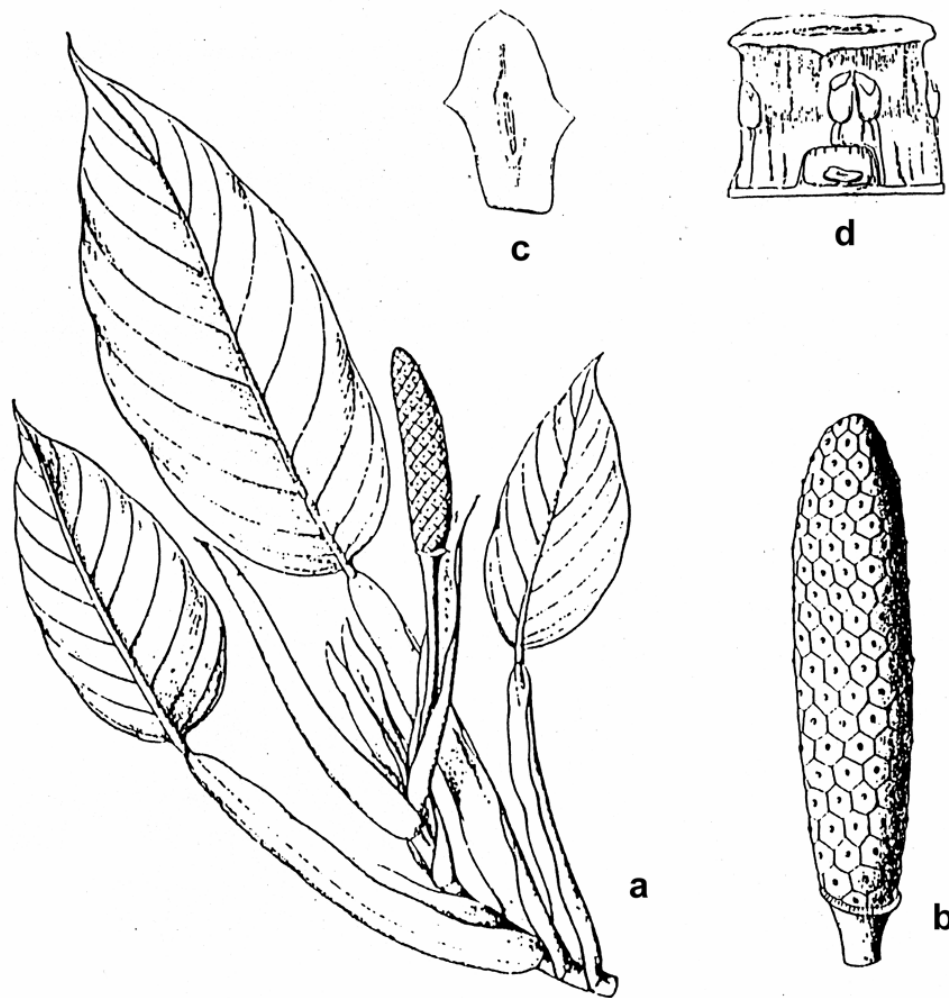


Fig. 3. *Scindapsus perakensis* Hook. f. (a) habit sketch ( $\times 0.013$ ), (b) spadix ( $\times 1$ ), (c) top view of stigma ( $\times 4$ ), (d) flower in gynoceium to show ovule ( $\times 4$ ).

*Use:* The plant, as a climber on wall or on big tree, possesses ornamental value for its showy oblong-lanceolate leaves borne on sheathing petioles.

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