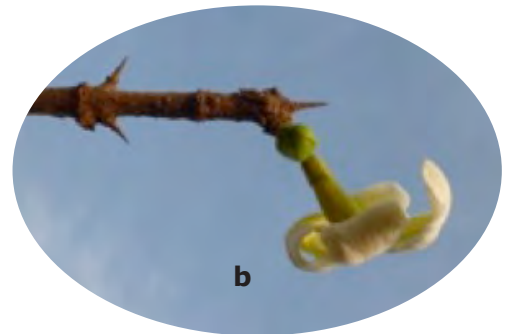


## Additions to the flowering plants of Goa



*Ceriscoides turgida*; a. Habit, b. Flower, c. Vertical section of flower, d. Transverse section of ovary

Goa harbours 1373 species of angiosperms (Anonymous, 2000). Several works documenting additions to the flora of Goa have been continuously appearing. Works such as Janarthanam (1994), Kulkarni & Janarthanam (1995), Joshi et al. (1997), Naithani et al. (1997), Patil & Yadav, (1998), Rajkumar et al. (1998), Rajkumar et al. (1999), Janarthanam et al. (2000), Joshi et al. (2001), Fonseca & Janarthanam (2003), Datar et al. (2005), Prabhugaonkar et al. (2007, 2009 & 2014), Gad & Janarthanam (2007a & 2007b), Datar & Lakshminarasimhan (2009, 2013), Kambale et al. (2015), Jalal et al. (2015) have particularly contributed. Regular field surveys to document flowering plants of Goa were conducted

from July 2015 to February 2016. During this period the authors have collected 15 species of flowering plants which were earlier reported from adjoining states of Goa (Nayar et al. 2014) but not reported from the state of Goa. Since Goa flora consists areas other than Goa viz; Diu, Daman, Dadra & Nagarhaveli in our study, the species which are mentioned by Rao (1986) in Goa flora but so far not reported from Goa state are considered to be new record for the state of Goa. Majority of them are of weedy nature and probably introduced recently. All the specimens have been deposited in Herbarium, Department of Botany, Goa University, Goa.

***Alternanthera ficoidea*** (L) sm. Cycl. [A. Rees], (London ed.) 39(1): 8. 1818.

**(Amaranthaceae)**

Annual herb. Stem ridged, two hairy lines on stem. Leaves opposite, sub-sessile, ovate. Inflorescence is an axillary spike. Tepals five, white to pale yellow, hairy. Staminodes 5, toothed.

**Habitat:** It is very common plant which grows in waste places along roadsides and in open areas as weed.

**Flowering & Fruiting:** Sept. – June.

**Specimen examined:** Reg. no. 207, 26.x.2015, India, Goa, North Goa, Taleigao plateau, Goa University Campus, coll. Kolte & Kambale.

***Gomphrena celosioides*** Mart. Nova Acta Phys.-Med. Acad. Caes. Leop.-Carol. Nat. Cur.13: 301. 1826. **(Amaranthaceae)**

Annual herb. Stem hairy, thick at nodal region. Leaves opposite, ovate, hairy. Inflorescence a terminal spike. Bracts two, bracteoles two, perianth shorter than bracts.

**Habitat:** The species grows in waste places along with *Alternanthera ficoidea*.

**Flowering & Fruiting:** Oct. – June.

**Specimen examined:** Reg. no. 208, 26.x.2015, India, Goa, North Goa, Taleigao plateau, Goa University Campus, coll. Kolte & Kambale.

***Grangea maderaspatana*** (L.) Desf. Tabl. Ecole. Bot. 95. 1804. **(Asteraceae)**

Annual, prostrate, hairy herb. Leaves opposite, toothed. Heads solitary, globose; pappus with a short ring of hairs.

**Habitat:** Grows in wet places and harvested paddy fields.

**Flowering & Fruiting:** Oct. – June.

**Specimen examined:** Reg. no. 239, 14.xii.2015, India, Goa, North Goa, Santacruz, coll. Kolte & Kambale.

**Mikania micrantha** Kunth Nov. Gen. Sp. 4(15): 105. 1818. **(Asteraceae)**

Perennial climber, stem twisted. Leaves opposite, sagitate. Heads in corymbs, flowers white.

**Habitat:** The species grows on vegetation along the roadsides and rivers.

**Flowering & Fruiting:** Oct. – Nov.

**Notes:** It was observed along with other aquatic plants in Karmali Lake near Old Goa. This indicates that it has wide range of adaptability to various habitats. As it is spreading fast it may be a threat to natural vegetation.

**Specimen examined:** Reg. no. 209, 31.x.2015, India, Goa, North Goa, Keri (Satari), coll. Kolte & Kambale.

**Ipomoea marginata** (Desr.) Verdc. Kew Bull. 42(3): 658. 1987. **(Convolvulaceae)**

Annual twiner. Leaves alternate, hastate. Inflorescence axillary cyme, peduncle 1.5-2cm long. Flowers pink, tube 2-2.5cm long.

**Habitat:** It was found growing in waste places as weed.

**Flowering & Fruiting:** Oct. – Nov.

**Specimens examined:** Reg. no. 206, 25.x.2015, India, Goa, North Goa, Taleigao plateau, Goa University Campus, coll. Kolte & Kambale.

**Merremia hederacea** (Burm.f.) Hallier f. Bot. Jahrb. Syst. 18(1-2): 118. 1893.**(Convolvulaceae)**

A hairy twiner. Leaves simple, trilobed. Inflorescence axillary, cyme. Flowers yellow, stamens exerted, hairy below.

**Habitat:** It was found growing as climber on the shrubs along margin of lake.

**Flowering & Fruiting:** Nov. – Dec.

**Specimen examined:** Reg. no. 241, 17.xii.2015, India, Goa, North Goa, Karmali, coll. Kolte & Kambale.

**Operculina turpethum** (L.) Silva Manso. Enum. Subst. Braz. 16, 49. 1836.**(Convolvulaceae)**

Perennial twining pubescent herb. Stem narrowly winged. Leaves ovate – lanceolate, cordate at base. Flowers axillary cyme one to few. Bracts elliptic-oblong. Sepals ovate. Corolla creamish white. Stamens spiral, hairy at base. Ovary hairy, stigma globose. Seeds four.

**Habitat:** It was found growing along the sea shore in sandy soil.

**Flowering & Fruiting:** Jan. – Feb.

**Specimens examined:** Reg. no. 296, 26.i.2016, India, Goa, North Goa, Siridao Beach, coll. Kolte & Kambale.

**Centrosema pubescens** Benth. Ann. Wiener Mus. Naturgesch. ii. 119. 1838. **(Fabaceae)**

Annual climber. Leaves alternate, trifoliate, ovate, stipule and stipulate.

Inflorescence axillary, flowers 5-6 in axil. Pod 10 - 12 cm long, flattened.

**Habitat:** It was found growing in waste places along roadsides.

**Flowering & Fruiting:** Oct – Nov

**Specimen examined:** Reg. no. 211, 31.x.2015, India, Goa, North Goa, Korlim, coll. Kolte & Kambale.

**Clitoria annua** J.Graham Cat. Pl. Bombay 47. 1839. **(Fabaceae)**

*Clitoria biflora* Dalzell in Hooker's J. Bot. Kew Gard. Misc. 2: 35. 1850.

Perennial woody erect undershrub up to 1 m height. Stem hairy. Leaves alternate 5- foliolate. Petiole 0.6– 0.7cm long; Leaflet elliptic-ovate, hairy. Inflorescence a 2-flowered cyme. Corolla blue. Pod flat, hairy; seeds 5–6, reniform.

**Habitat:** It was found growing along the roadside.

**Flowering & Fruiting:** Sept. – Oct.

**Notes:** Rare. Probably recently naturalised in Goa.

**Specimen examined:** Reg. no. 204, 16.x.2015, India, Goa, North Goa, Taleigao plateau, Goa University Campus, coll. Kolte & Kambale.

**Rotala rosea** (Poir.) C.D.K. Cook Boissiera 29: 86 (1979). **(Lythraceae)**

Annual, glabrous herb. Leaves opposite decussate, elliptic 1 – 1.2 x 0.3 – 0.5 cm. Flowers axillary, solitary. Petals five, pink. Stamens inserted in hypanthium tube.

**Habitat:** It grows in shallow water and along the margins of ponds.

**Flowering & Fruiting:** Oct. – Dec.

**Specimen examined:** Reg. no. 217, 10.xii.2015, India, Goa, North Goa, Mopa plateau, coll. Kolte & Kambale.

**Urena sinuata** L. Sp. Pl. 2: 692 (1753). **(Malvaceae)**

Annual pubescent herb. Leaves alternate, stipulate and deeply lobed. Flowers axillary solitary, petals pinkish. Schizocarps globular, glochidiate; glochidion 4 hooked. Seeds reniform.

**Habitat:** It was growing in open places.

**Flowering & Fruiting:** Dec. – Jan.

**Notes:** This species is often confused with *Urena lobata* however it can be distinguished easily by leaf morphology.

**Specimen examined:** Reg. no. 237, 14.xii.2015, India, Goa, North Goa, Santacruz, coll. Kolte & Kambale.

**Mimosa diplotricha** C.Wright var. *inermis* (Adelb.) Veldkamp Fl. Males. Bull. 9(4): 416.

1987. **(Mimosaceae)**

Unarmed undershrub. Stem slightly ridged and hairy. Leaflets 16 – 18. Inflorescence axillary. Heads globose; flowers pink. Pods 2.5 – 3 cm long, curved.

**Habitat:** This was found growing in open area.

**Flowering & Fruiting:** Dec. – Jan.

**Notes:** This species seems to be recently introduced and hence rare in occurrence. This variety can be easily distinguished from typical variety (*M. Dilpotricha* var. *diplotricha*) in absence of prickles.

**Specimen examined:** Reg. no. 242, 17.xii.2015, India, Goa, North Goa, Goa-Velha, coll. Kolte & Kambale.

**Pennisetum polystachion** (L.) Schult., Systema Vegetabilium Mantissa 2. 79. 1824.

**(Poaceae)**

Annual. Culms tufted, 50 -160 cm tall, erect, nodes glabrous. Leaf sheath hairy. Leaf blade linear ovate. Panicles winged, glabrous. Spikelet sessile, elliptic - ovate.

**Habitat:** It was found growing in open area on plateau.

**Flowering & Fruiting:** Oct. – Dec.

**Specimen examined:** Reg. no. 218, 10.xii.2015, India, Goa, North Goa, Taleigao plateau, Goa University Campus, coll. Kolte & Kambale.

**Ceriscoides turgida** (Roxb.) Tirveng., Bull. Mus. Natl. Hist. Nat., Sér. 3, Bot. 521, Bot. 35:

15. 1978. **(Rubiaceae)**

Perennial woody tree about 3 – 4 m in height; bark smooth grey, peels off. Spines c.1 cm long. Leaves petiolate, 7– 7.5 x 3.5 – 3.7 cm, glabrous, obtuse at apex, tapering towards base. Flowers terminal. Male flower: corolla tube 1 – 1.2 cm long; corolla lobe 1 – 1.5 cm long. Stamens 5; filament c. 5 mm long; anthers c. 7 mm long. Female flowers: calyx teeth longer than the calyx teeth of male flowers; stigma 5 mm long. Ovary with

single locule, ovules many on parietal placentaion. Fruit berries, globose 5 x 5 cm.

**Habitat:** Grows on open lateritic plateau in association with *Careya arborea* Roxb and *Flacourtia indica* (Burm.f.) Merr.

**Note:** *Creumatogaster* ants were observed on this plant.

**Flowering & Fruiting:** Jan. – Feb.

**Specimen examined:** Reg. no. 322, 17.ii.2016, India, Goa, South Goa, Zuarinagar, Vasco, (Plateau), coll. Kolte & Kambale.

### **Solanum torvum** Sw. Prodr. 47.1788. (**Solanaceae**)

Perennial shrub. Stem hairy, prickly. Leaves alternate, 3-5 lobed, hairy. Inflorescence a corymb; corolla white; anthers yellow, porate. Fruit berry.

**Habitat:** It found to be growing in open areas.

**Flowering & Fruiting:** Oct. – Nov.

**Specimen examined:** Reg. no. 205, 22.x.2015, India, Goa, North Goa, Bondla, coll. Kolte & Kambale.

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**Rutuja R. Kolte<sup>1</sup> & Sharad S. Kambale<sup>2</sup>**

<sup>1</sup>Department of Botany, Goa University, Goa 403206, India. Email: [rutuja24kolte@gmail.com](mailto:rutuja24kolte@gmail.com) (Corresponding author)

<sup>2</sup>Department of Botany, Maratha Vidya Prasarak Samaj, Arts, Commerce & Science College, Trambakeshwar, Nashik, Maharashtra 422212, India

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