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POTENTIAL ORNAMENTAL CLIMBERS FROM MEENACHIL TALUK OF KOTTAYAM DISTRICT, KERALA, INDIA

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ABSTRACT

The present paper highlights the ornamental potentialities of 12 climbing species such as *Abrus precatorius* L., *Asparagus racemosus* Willd., *Clitoria ternatea* L., *Coccinia grandis* (L.) Voigt, *Hewittia malabarica* (Linn.) Suresh, Ipomoea *obscura* (L.) Ker-Gawl, *Ipomea cairica* (L.) Sweet, *Ipomea pes-trigridis* L., *Merremia tridentata* (L.) Hall., *Merremia umbellata* (L.) Hall., *Passiflora edulis* Sims and *Thunbergia grandiflora* (Roxb. *ex* Rottl.) Roxb. were collected from Meenachil Taluk of Kottayam district, Kerala, India.

Key words: Ornamental Climbers, Meenachil Taluk, Kottayam District, Kerala.

INTRODUCTION

Plants exercise a strong, positive influence on human behavior [1-3]. Wild plants are a striking feature of the land surface. They vary greatly in composition and density in marked contrast with domesticated plants [4]. Most of the present day flowers have come from the wild progenitors, a few of which still exist in natural habitat [5]. The wild ornamental potential plants play an important role in environmental planning of urban and rural areas for abatement of pollution, social and rural forestry, wasteland development, afforestation and landscaping of outdoor and indoor spaces [6]. Ornamental plants are grown usually for the purpose of beauty, for their fascinating foliage, flowers and their pleasant smell [7]. The lack of suitable management and unsustainable utilization of wild resources may lead it to become rare and endangered. The safe conservation and sustainable uses of wild resources is essential for future generations [8].

Among many wild ornamental climbers are versatile group of plants and are used to cover fences, walls, trellis and arches [9]. These are used as both indoor as well as outdoor plants. Their ability to cover and transform a bare area is unparalleled in the plant world [10]. Climbers not only form important structural components but also play important ecological role in forest dynamics, diversity and nutrient recycling [11]. Climbers are typical constituents of rain forest. The distribution and abundance of climbing plants in forest varies greatly with the geographic locality of forest [12]. There is some evidence that vines are increasing in dominance in both tropical and temperate forests [13-15].

MATERIALS AND METHODS

Study area

Meenachil taluk of Kottayam district, Kerala

Meenachil taluk lies in the North-Eastern region of Kottayam district, Kerala (9.36° N and 76.17° E). The area is blessed with diversified habitats such as lush paddy fields, hills and hillocks, highlands and different crop plantations. Though food crops like paddy and tapioca are cultivated, majority of the population depends on cash crops like rubber and black pepper for their income.

It has a tropical climate. The humidity is high and rises to about 90% during the rainy season. This area gets rain from two monsoon seasons, the South-West monsoon and the North-East monsoon. The average rainfall is around 3600 mm per year. The South-West monsoon starts in June and ends in September. The North-East monsoon season is from October to November. Pre-monsoon rains during March to May are

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accompanied by thunder and lightning; the highest rainfall during this period, in December, January and February are cooler, while March, April and May are warmer. The temperature ranges between 38.5 °C and 15 °C (Plate-1).

Documentaton

The present study was based on extensive survey and field observations during the year 2013 – 2014. During the field visits, the plant specimens were collected at different reproductive stages to prepare herbarium specimens [16,17]. Authenticate their correct identity with help of available floras and Literature [18,19]. The voucher specimens were deposited in the Herbaria of Department of Botany, Deva Matha College, Kuravilangad, Kottayam for future reference.

ENUMERATION

Enumeration part consists of accepted botanical name of a plant followed by synonyms and local name if any, taxonomic and morphological description, Phenology, ornamental potentiality and mode of propagation are also given.

1. Abrus precatorius L., Syst, Nat. (ed.12) 2: 472. 1767. *Glycine abrus* L., Sp. Pl. 753. 1753; Fl. Brit. India 2: 175. 1876; Fl. Pres. Madras 1: 349. 1918 (Fabaceae) (Pl. 2A).

Climber, stem wiry.Leaves abruptly pinnate with many pairs of leaflets up to 1.5 inch long.Flowers in fascicles in dense thickened racemes on axillary peduncles. Corolla pink. Pod thin, flat, smooth; seeds compressed, blood red.

Local Name: *Kunni*
Fl. & Fr.: Jan.-Dec.
Ornamental potential: Good looking climbing habit with attractive seeds.
Mode of propagation: seeds.

2. *Asparagus racemosus* Willd., Sp. Pl. 2: 152. 1799; Fl. Brit. India 6: 316. 1892; Fl. Pres. Madras 1517. 1928 (Asparagaceae) (Pl. 2B).

Armed vine to 6-10 m; spines erect, to 2 cm. Leaves scaly, triangular to 6 mm across. Stiff-acuminate.Cladodes 2-6, linear to 2 × 0.7 cm. Inflorescence raceme(s). Flowers bisexual, 6 mm across, strongly scented. Perianth-lobes 6, white, 3 × 0.8 mm. Stamens 6, adnate to the base of perianth; anthers black. Ovary obovoid, 3- celled; ovules 2, axile, style terminal, stigma 3, recurved. Berry globose to 6 mm; seeds 3-6, globose.

Local Name: *Sathavery*
Fl. & Fr.: Throughout the year.
Ornamental potential: An attractive vine.
Mode of propagation: Tuber.

3. *Clitoria ternatea* L., Sp. Pl. 753. 1753; Fl. Pres. Madras 1:365.1918 (Fabaceae)(Pl. 2C).

Herbs, twining. Leaves 7-9 cm long; leaflets 1.5-5×1-3 cm, elliptic or ovate, petioles up to 2cm long. Flowers axillary, solitary, 2-3cm across, violet or white. Corolla exerted. Stamens 9+1. Pods oblong, 7-10×0.8cm, laterally flattened, margined. Seeds 10-15, reniform.

Local Name: *Sankupushpum*
Fl. & Fr.: May - Oct.
Ornamental potential: Good looking climbing habit with attractive violet flowers.
Mode of propagation: Seeds.

4. *Coccinia grandis* (L.) Voigt, Hort-Sub.Calc. 59. 1845. *Bryoniagrandis* L. Mant. Pl. 126. 1767; Fl. Brit. India 2:621. 1879; Fl. Pres. Madras 1: 537. 1919 (Cucurbitaceae) (Pl. 2D).

Vine. Leaves 5- angled; tendril simple. Flowers bisexual.Corolla companulate. Petals white. Stamens inserted at the base of calyx; filaments connate in to a columns; anthers connate. Ovary oblong, ovules numerous, horizontal, staminoides 3, subulate.Fruit ovoid, compressed, glandular.

Local Name: *Koval*
Habitat: Common in the waste lands.
Fl. & Fr.: Dec. - Mar.
Ornamental potential: Good looking vine habit
Mode of propagation: Stem cuttings

5. *Hewittia malabarica* (Linn.) Suresh in Nicils.*et al*., Interp. Hort. Malab. 88. 1988. *Convolvulus malabaricus* Linn., Sp. Pl. 155. 1753 (Convolvulaceae) (Pl. 2E).

Twiners, pubescent all over. Leaves ovate, acute or acuminate, cordate or hastate at base. Flowers axillary, few- flowered cyme. Sepals ovate-acuminate.Corolla white or yellow with purple eye, companulate. Stamens included. Stigma 2, oblong; Capsule depressed-globose, pubescent. Seeds black, glabrous.

Fl. & Fr.: Nov. – Mar.
Ornamental potential: Charming climbing habit with cute yellow flowers
Mode of propagation: Seeds

6. *Ipomea cairica* (L.) Sweet, Hort. Brit. (ed.1) 287. 1827. *Convolvulus cairicus* L., Syst. Nat. (ed. 10) 922. 1759; Fl. Brit. India 4: 214. 1883; Fl. Pres. Madras 918.1923 (Convolvulaceae) (Pl. 2F).

Vine, profusely branched. Leaves palmately 5-7 foliate divided from below the middle, lobes elliptic to obovate. Flowers solitary or in lax cymes. Calyx-lobes sub equal. Corolla pink, funnel-form. Stamens pilose below; Capsules 0.7 cm across. Seeds white-pubescent.
Local Name: *Kolambipoo*
Ornamental potential: Lovely violet flowers

Fr & Fl: Throughout the year
Mode of propagation: Seeds.

7. *Ipomoea obscura* (L.) Ker-Gawl., in Bot. Reg. 3: t. 239. 1817. *Convolvulus obscurus* L., Sp. Pl. (ed.2) 220. 1762; Fl. Brit. India 4: 207. 1883; Fl. Pres. Madras 916.1923 (Convolvulaceae) (Pl. 3A).

Climber, twining. Leaves alternate, cordiform, 3-4 × 2.5-4 cm, sparsely pubescent above, acute, base cordate. Peduncle 4 cm. calyx lobes unequal, corolla yellowish, white, 2.5 cm across, funnel- form; Capsule subglobose, beaked.

Local Name: *Thiruthali*
Fl. & Fr.: Throughout the year.
Ornamental potential: Good looking yellowish - white flowers.

8. *Ipomea pes-trigridis* L., Sp. Pl. 162. 1753. *Ipomoea hepaticifolia* L., Sp. Pl. 161.1753; Fl. Brit. India 4: 204. 1883; Fl. Pres. Madras 2: 918. 1923 (Convolvulaceae) (Pl. 3B).

Climber, twining, densely hirsute.Leaves palmately 5-9 lobed, lobes obovate- elliptic, acuminate, apiculate, sparsely piloseupto 4cm long.Flowers subsessile in capitate clusters; calyx lobes unequal; corolla white, funnel form.Capsule globose 0.8cm across.

Local Name: *Pulichuvadi*
Fl & Fr.: Throughout the year.
Ornamental potential: Beautiful white-purple flowers
Mode of propagation: Seed

9. *Merremia tridentata* (L.) Hall.f. in Engl., Bot. Jahrb. Syst. 16: 552. 1893. *Ipomoea tridentata* (L.) Roth in Roem., Arab. Bot. 1: 38. 1797; Fl. Brit. India 4: 205. 1883; Fl. Madras 928.1923 (Convolvulaceae) (Pl. 3C).

Herb, climbing or prostrate with several branches radiating from a woody base. Leaves spathulate; oblong to pandurate, 1.5-2.5 x 0.7-1 cm, broader towards apex.Flowers 1; calyx lobes subequal, outer 3 acuminate; inner 2 acute.Corolla cream to yellowish with purple throat; companulate, 1.5 across.Capsule 0.7 cm across; seeds glabrous.

Local Name: *Negikulovu*
Fl. & Fr.: Dec- Jan.
Ornamental potential: An attractive prostrate herb with cream-yellowish flowers
Mode of propagation: Seeds.

10. *Merremia umbellata* (L.) Hall.f. in Engl. Bot. Jahrb. Syst. 16: 552. 1893. *Convolvulus umbellatus* L., Sp. Pl. 155. 1753; Fl. Pres. Madras 928.1923 (Convolvulaceae) (Pl. 3D).

Vine, Leaves elliptic to obovate. Cyme inflorescence. Calyx- lobes sub equal, broadly ovate-concave.Corolla white.Capsule 0-8cm across.Seeds hairy.

Local Name: *Vayara*
Fr & Fl: Mar.-May
Ornamental potential: Attractive white flowers
Mode of propagation: Seeds

11. *Passiflora edulis* Sims in Curtis, Bot. Mag. t. 1989; Fl. Pres. Madras 524. 1919 (Passifloraceae) (Pl. 3E).

Vine, spreading on thickets. Leaves deeply 3-lobed, 9-17 x 10-15 cm; petioles with 2 glands near the insertion of leaf-blade. Flowers 6.5 cm across.Calyx-lobes without apical spur.Petals oblong, white. Corona in 4 or 5 whorls,violet at apex and white at below. Berry ovoid.

Common Name: *Passion-fruit*
Fl. & Fr.: March- Dec.
Ornamental potential: Good looking climbing habit with attractive whitish-violet flowers.
Mode of propagation: Seeds

12. *Thunbergia grandiflora* (Roxb. *ex* Rottl.) Roxb., Bot Cab. t. 324. 1819. *Flemingia grandiflora* Roxb. *Ex* Rottl. Nov. Acta Phys. Med. Acad. Caes.Leop. Carol. Nat. Cur. 4: 202.1803; Fl. Pres. Madras 1008.1924 (Acanthaceae) (Pl. 3F).

Climber. Leaves deltoid with ovate-lanceolate. Flowers in terminal racemes, rarely one or in axillary clusters. Calyx reduced to a velvety rim. Corolla white below, expanding into blue, violet lobes with yellow centre. Anthers oblong, one lobe of short stamens spurred, both lobes of long stamen spured.

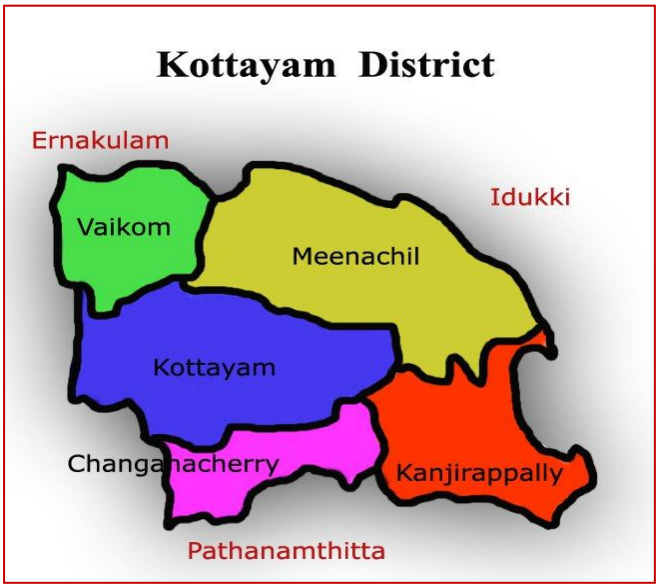
Local Name: *Maravalli*
Fr & Fl: Throughout the year
Ornamental potential: Good looking violet flowers
Mode of propagation: Seeds

RESULTS AND DISCUSSION

The present paper highlights the ornamental potentialities of 12 climbing species belonging to 9 genera and 6 families. These are *Abrus precatorius* L., *Asparagus racemosus* Willd., *Clitoria ternatea* L., *Coccinia grandis* (L.) Voigt, *Hewittia malabarica* (Linn.) Suresh, *Ipomoea obscura* (L.)Ker-Gawl, *Ipomea cairica* (L.) Sweet, *Ipomea pes-trigridis* L., *Merremia tridentata* (L.) Hall., *Merremia umbellata* (L.) Hall., *Passiflora edulis* Sims and *Thunbergia grandiflora* (Roxb. *ex* Rottl.) Roxb. (Plate 2 & 3) were collected from Meenachil taluk of Kottayam district. The ornamental potentialities of these plants may vary in their attractive habit, beautiful flowers and good looking plant parts. The mode of propagation of these plants are mainly by seeds (10 Nos.), Tuber (1 No.) and Stem cuttings (1 No.) respectively. These wild ornamental plants especially the climbers have a great role in domestic gardens and landscape practices.

Plate-1

A). ***Map of India Showing Kerala State***



B). ***Map of Kottayam district showing Meenachil Taluk***

Plate-2

A). ***Abrus precatorius*** L.

B). ***Asparagus racemosus*** Willd.

C). ***Clitoria ternatea*** L.

D). ***Coccinia grandis*** (L.) Voigt

E). *Hewittia malabarica* (Linn.) Suresh

F). *Ipomea cairica* (L.) Sweet

Plate-3

A). *Ipomoea obscura* (L.) Ker-Gawl.

B). *Ipomea pes-trigridis* L.

C). *Merremia tridentata* (L.) Hall.

D). *Merremia umbellata* (L.) Hall.

E). *Passiflora edulis* Sims.

F). *Thunbergia grandiflora* (Roxb. *ex* Rottl.) Roxb.

CONCLUSION

The various wild ornamentals are raises their aesthetic value in indoors and outdoors. According to this study we hope to convey that the wild climbers are also an important factor for the contribution to the biodiversity of the existing area. Some of the threatened factors like fast rate of biotic interference, destruction of natural habitat by human interference, cutting of trees and shrubs for construction purpose and unsustainable utilization of resources may adversely affect the existing diversity of climbers of the study area. The lack of awareness about conservation and the balance of nature many of our wildlife habitats are lost forever. So conservation of wild plant resources will help to maintain the balance of nature to a wide extend.

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