

EXPLORATION OF WILD ORNAMENTAL FLORA OF YSR DISTRICT, ANDHRA PRADESH, INDIA

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ABSTRACT

Identification and exploration of wild ornamental species is one of the new areas of research and accounts wide spectrum of uses in environmental management. Using field investigation in combination with analysis of relevant literature and available data, this paper presents study of botanical exploration and investigation in wild vegetation of YSR district. Results indicated that YSR district had abundance of wild ornamental plants which exhibits wide range of diversity in terms of taxa, habit and growth forms. This study identified 356 species belonging to 246 genera and 105 families with potential artistic ornamental value. The distinguishing features of these wild plants, their characteristics and habitats were analyzed. The ornamental potential of most plants are its flowers, some species have ornamental fruits and foliage. Some suggestion for further exploitation, utilization and protection is given in the paper. We hope that this work will help the researchers and people, who are interested in wild ornamental plants.

Keywords: *Ornamental, YSR district, vegetation, flora.*

INTRODUCTION:

Most of the present day flowers have come from the wild progenitors, a few of which still exist in natural habitat (Thomas et al., 2011). Many plants that were once abundant were extremely hard to find in their usual habitats during our research since, the bigger problem is that there is no official judgment of whether they have disappeared or not. Nature has given a wealth of wild flower and ornamental plants, unfortunately many of them have been destroyed to such an extent that several have become extinct and survival of many is endangered by over exploitation by human beings (Arora 1993). The objective of ornamental horticulture is the functional and aesthetic integration of people, using plants and space as its main tools. The necessity of it in architecture is for positive control of the fast changing landscape for the future (Chin and Tay, 2006). The Wild Vegetation of YSR district area is blessed with rich and fascinating, holds a large number of curious, botanically interesting, exquisite, economically important, rare, threatened, endangered and endemic plants (Pullaiah et al., 2007). The geographical location, climate and varying topography with lofty hill ridges and deep valley accompanied by wide variation in climate and soil have resulted into the formation of varied ecological diversity. This region is a huge repository of plants of botanical importance and a reservoir of genetic variability, ecosystem diversity and species diversity (Rajagopal Reddy et al., 2011). Earlier studies on flora of YSR district was made by Madhusudana Rao (1989), mentioned 25 species of horticulture interest. Our work evaluates a state of the art in the field of enumeration and assessment of ornamental flora in different sites and points to research gaps and outlines avenues of further research towards documentation of ornamental flora. We suggest that cultivation of these species may be beneficial, both commercially and to help conserve rare, vulnerable, endangered endemic plant species. In the present study we enumerated 356 wild ornamental potential plants belonging to 18 different families of angiosperms. Out of the 356 plants, some of them are tabulated alphabetically with botanical name, habit, mode of their aesthetic ornamental utility (Table: 1).

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MATERIALS AND METHODS

The methodologies and approaches for these wild ornamental plants enumeration was followed as suggested by Jain and Rao (1977). An intensive field work was undertaken in different forest areas of the YSR District. With the objective to recognize native plants suitable for landscaping and floral art. we evaluated a large number of species. Sites of occurrence were identified through field explorations, indications of inhabitants and visits for the collection of herbaria. Taxonomic identification, photographic documentation and ornamental characterization of each species with potential for use on floral art (flowers or cut foliage) or landscaping (for gardens or pots) were recorded. The methodology used is based on Observation Method, key method for the determination of flora. The major forest areas of the study area are Palakonda, Guvvalacheruvu, Lankamalla, Chitvel, Balapalli and Sanipai. The extensive and intensive field trips were conducted during June 2008 to June 2010. All the specimens collected were identified with the help of recent literature by local floras authored by Pullaiah (2002) and Pullaiah et al. (2007), Yasodamma & Binny (2011) and authentic herbarium sheets available at Madras Herbarium (MH), Botanical Survey of India, Southern Circle, Coimbatore. The voucher specimens were deposited in the herbarium of Botany department, Yogi Vemana University, Kadapa.

Topography of the study area

The YSR district with an area of 15,378.41 Sq.Km. is situated in the south central part of Andhra Pradesh state. It is bounded on the north by Kurnool, on the south by Chittoor, on the east by Nellore and on the west by Anantapur districts. Geometrically the district is located between $13^{\circ} 43'$ and $15^{\circ} 14'$ of the northern latitude and $77^{\circ} 55'$ and $79^{\circ} 29'$ of the eastern longitude. The district spreads northwards beneath the western slopes of the Eastern Ghats as a rough parallelogram dented deeply in its southern, western and northern boundaries.



Fig 1: Wild vegetation of YSR district

A. Lankamalla forest vegetation B. Chitvel-Rajampet reserve forest

The forests in Y.S.R. District extend over 4978 Sq. Km. forming 30.92% of the total geographical area. Major forest areas of Y.S.R. district are comes under Dry deciduous and Scrub spiny forests. These forests show much diversity possessing Nallamalais, Seshachalam along with Erramalais vegetation.

RESULTS

The field expeditions of YSR district wild vegetations gave interesting results concerning floristic diversity. A total of 710 Angiosperm species are present in this region, out of which ornamentally significant wild species are 356 including 10 pteridophytes (data not shown), and only one endemic species (*Pterocarpus santalinus*). Among the studied species, dicots were distributed in 81 families with 301 species, monocots in 13 families with 44 species, Pteridophytes are in 10 families with 10 species and gymnosperm in one family with one species (Fig 3). we have focused only on dicots and monocots. The classification of the ornamental flora based on the diversity of its utilization, indicating that the maximum (81 species) of the plants can be used as public garden plants followed by 60 species as avenue plants, 57 species can be used in decorative utility in parks and gardens, 42 species as hedges, 41

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species in indoor ornamentation, 22 species can be utilized as lawn, 13 species in road dividers, another 13 species can be used in arches, 10 in fencing the boundaries, 9 aquatic species, 7 species in household gardens and a single species can be used in the preparation of bouquets (Fig 7) (Table 1). Based on the habit of this ornamental species it was identified that the 122 species belongs to shrubs, followed by 110 herbs, 94 trees, 14 climbers, 9 grasses, 3 lianes, 3 creepers and single epiphyte (*Vanda tessellata* (Roxb.) Hook.) (Fig 2).

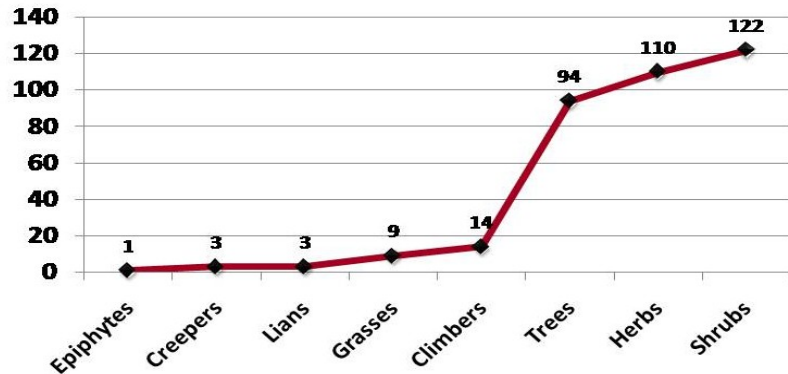


Fig.2 : Number of Ornamental Plants enumerated based on its Habit

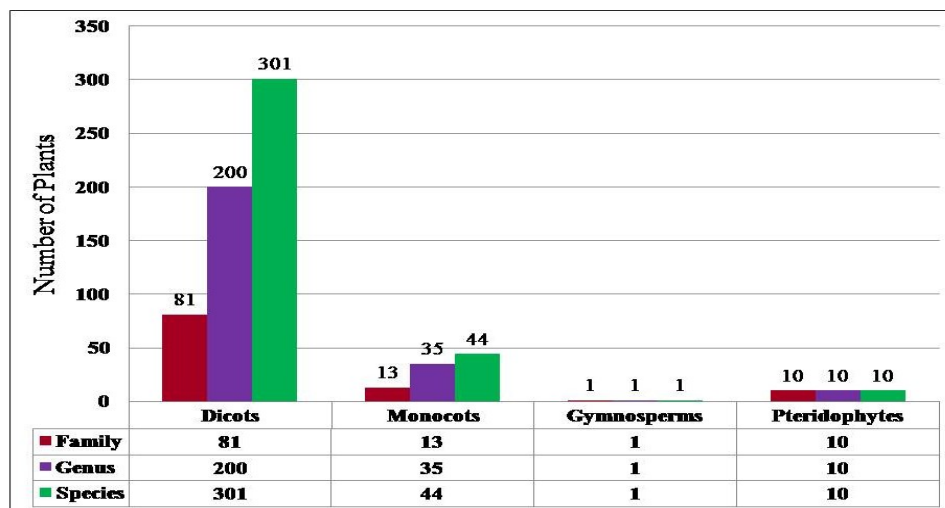


Fig. 3 Category wise families, genera and species of Ornamental plants

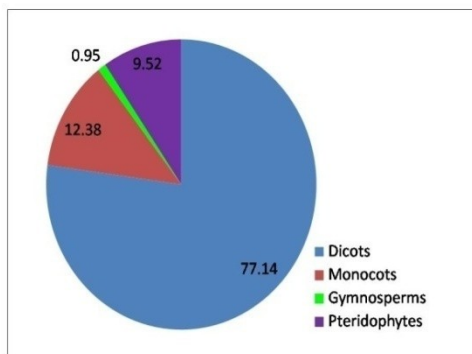


Fig. 4 Family wise distribution percentage of ornamental plants

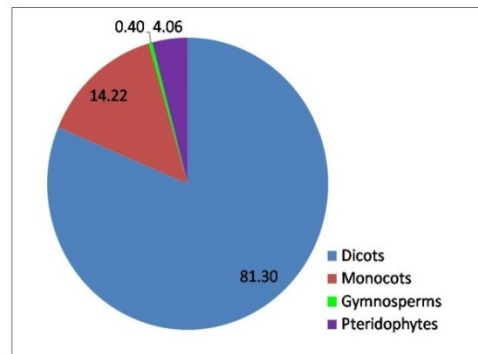


Fig. 5 Genus wise distribution percentage of ornamental plants

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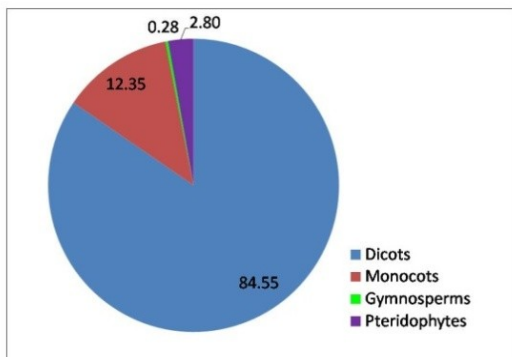


Fig. 6 Species wise distribution percentage of ornamental plants

The percentage distribution in documented ornamental flora are recorded as families with 77.1% dicots, 12.3% monocots, 9.52% pteridophytes and only 0.9% of gymnosperms (Fig.4). When genus is recorded, 81.3% are dicots, 14.2% monocots, 4.06% pteridophytes and 0.40% distribution is recorded with gymnosperms (Fig. 5). When the percentage distribution is calculated, it was found that 84.5% of dicots, 12.35% of monocots, 2.80% of pteridophytes and 0.28% of gymnosperms are present (Fig. 6). This profiling indicated that the maximum ornamentals are dicots following monocots, pteridophytes and gymnosperms.

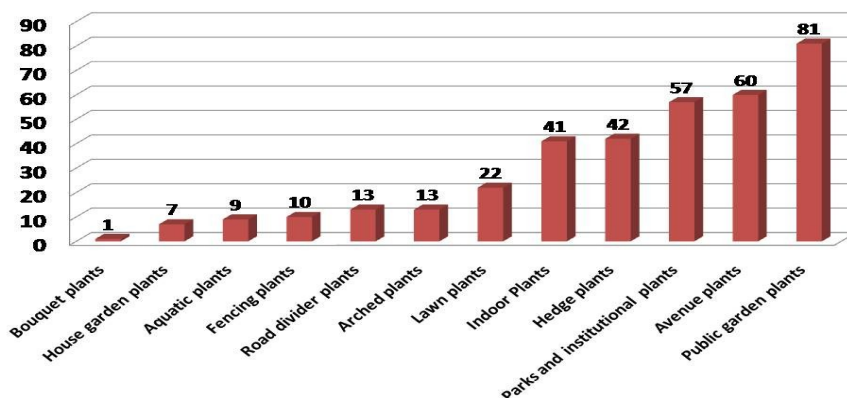


Fig.7 .Wild Ornamental plants classified according to its Utility

Table 1 :Characterization of the recorded flora according to the ornamental utilization

S.No	Habit	Ornamental utility	Botanical Name
1.	Trees	Avenue plants, public gardens.	<i>Acacia chundra</i> , <i>Acacia eburnea</i> , <i>Acacia nilotica</i> , <i>Aegle marmelos</i> , <i>Atalantia racemosa</i> , <i>Barringtonia acutangula</i> , <i>Bauhinia purpurea</i> , <i>Bauhinia racemosa</i> , <i>Bombax ceiba</i> , <i>Buchanania axillaris</i> , <i>Butea monosperma</i> , <i>Cassia fistula</i> , <i>Cassia montana</i> , <i>Chukrasia tabularis</i> , <i>Cochlospermum religiosum</i> , <i>Crateva magna</i> , <i>Dichrostachys cinerea</i> , <i>Dolichandron falcata</i> , <i>Dolichandrone atrovirens</i> , <i>Ficus microcarpa</i> , <i>Ficus hispida</i> , <i>Ficus tinctoria</i> , <i>Gyrocarpus asiaticus</i> , <i>Hibiscus platanifolius</i> , <i>Melia azedairach</i> , <i>Mimusops elangi</i> , <i>Mitragyna parviflora</i> , <i>Morinda pubescens</i> , <i>Ochna obtusata</i> , <i>Pterocarpus santalinus</i> , <i>Sterculia urens</i> , <i>Strychnos nux-vomica</i> , <i>Strychnos potatorum</i> , <i>Terminalia chebula</i> , <i>Vitex altissima</i> .
2.	Grasses and sedges	Lawns, bouquets.	<i>Chloris virgata</i> , <i>Cymbopogon coloratus</i> , <i>Cynodon dactylon</i> , <i>Cyperus exaltatus</i> , <i>Eragrastiella bifaria</i> , <i>Fimbristylis argentea</i> , <i>Pycreus polystachyos</i> , <i>Saccharum spontaneum</i> , <i>Typha angustata</i> .
3.	Succulents	Indoor plants	<i>Caralluma lasiantha</i> , <i>Caralluma umbellata</i> , <i>Crinum</i>

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			<i>asiaticum, Drimia indica, Euphorbia barnhartii, Portulaca pilosa, Sarcostemma acidum, Talinum cuneifolium.</i>
4.	Creepers and climbers	House hold creepers	<i>Aristolochia indica, Canavalia gladiata, Capparis zeylanica, Cassytha filiformis, Cissus quadrangularis, Clitoria ternatea, Gloriosa superba, Hemidesmus indicus, Ipomoea cairica, Ipomoea hederifolia, Ipomoea obscura, Merremia aegyptia, Oxystelma esculentum, Passiflora foetida.</i>
5.	Creepers, Lianes	Arches in public gardens	<i>Argyrea pilosa, Cadaba fruticosa, Capparis grandis, Cryptostegia grandiflora, Dioscorea oppositiflora, Gymnema sylvestre, Oxystelma esculentum, Symphorema involucreatum, Trichosanthes bracteata.</i>
6.	Herbaceous	Gardens, parks	<i>Anisochilus carnosus, Aristolochia indica, Asclepias curassavica, Bankera malabarica, Barleria longifolia, Barleria longifolia, Clerodendrum serratum, Commelina maculata, Curculigo orchioides, Desmodium heterocarpon, Goodyera procera, Heliotropium strigosum, Hibiscus ovalifolius, Holostemma ada-kodien, Indigofera linnaei, Lepidagathis mitis, Ludwigia perennis, Pavonia odorata, Polygonum glabrum, Scilla hyacinthina, Sesamum orientale, Stachytarpheta jamaicensis, Vicoa indica .</i>
7.	Herbaceous	Fencing and Hedge plants	<i>Abutilon hirtum, Anisomeles malabarica, Aristolochia bracteolata, Asystasia gangetica, Barleria prionotis, Biophytum sensitivum, Cadaba fruticosa, Cassia angustifolia, Celosia argentea, Cereus pterogonus, Crotalaria verrucosa, Erythroxyton monogynum, Evolvulus alsinoides, Gmelina asiatica, Habenaria roxburghii, Haldinia cordifolia, Hugonia mystax, Ipomoea staphylina, Maytenus emarginata, Mucuna pruriens, Oxalis corniculata var atropurpure, Passiflora foetida, Pavonia zeylanica, Sida rhombifolia, Tamarix ericoides, Turnera ulmifolia.</i>
8.	Aquatic	Ponds, pools (indoor, outdoor)	<i>Aponogeton natans, Bacopa monnieri, Ipomoea aquatica, Nymphaea nouchali, Nymphaea pubescens, Pistia stratiotes, Typha angustata, Utricularia stellaris.</i>
9.	Shrubs	Gardens	<i>Acacia farnesiana, Artabotrys hexapetalus, Asparagus racemosus, Barleria buxifolia, Bauhini racemosa, Breynia vitis-idaea, Calycopteris floribunda, Capparis zeylanica, Carissa carandas, Clerodendrum inerme, Crotalaria retusa, Gardenia gummifera, Grewia tenax, Helicteres isora, Indigofera aspalathoides, Jasminum cuspidatum, Lawsonia inermis, Mimosa intsia, Murraya paniculata, Pterolobium hexapetalum, Rauwolfia tetraphylla, Solanum trilobatum, Tarenna asiatica, Urena lobata.</i>

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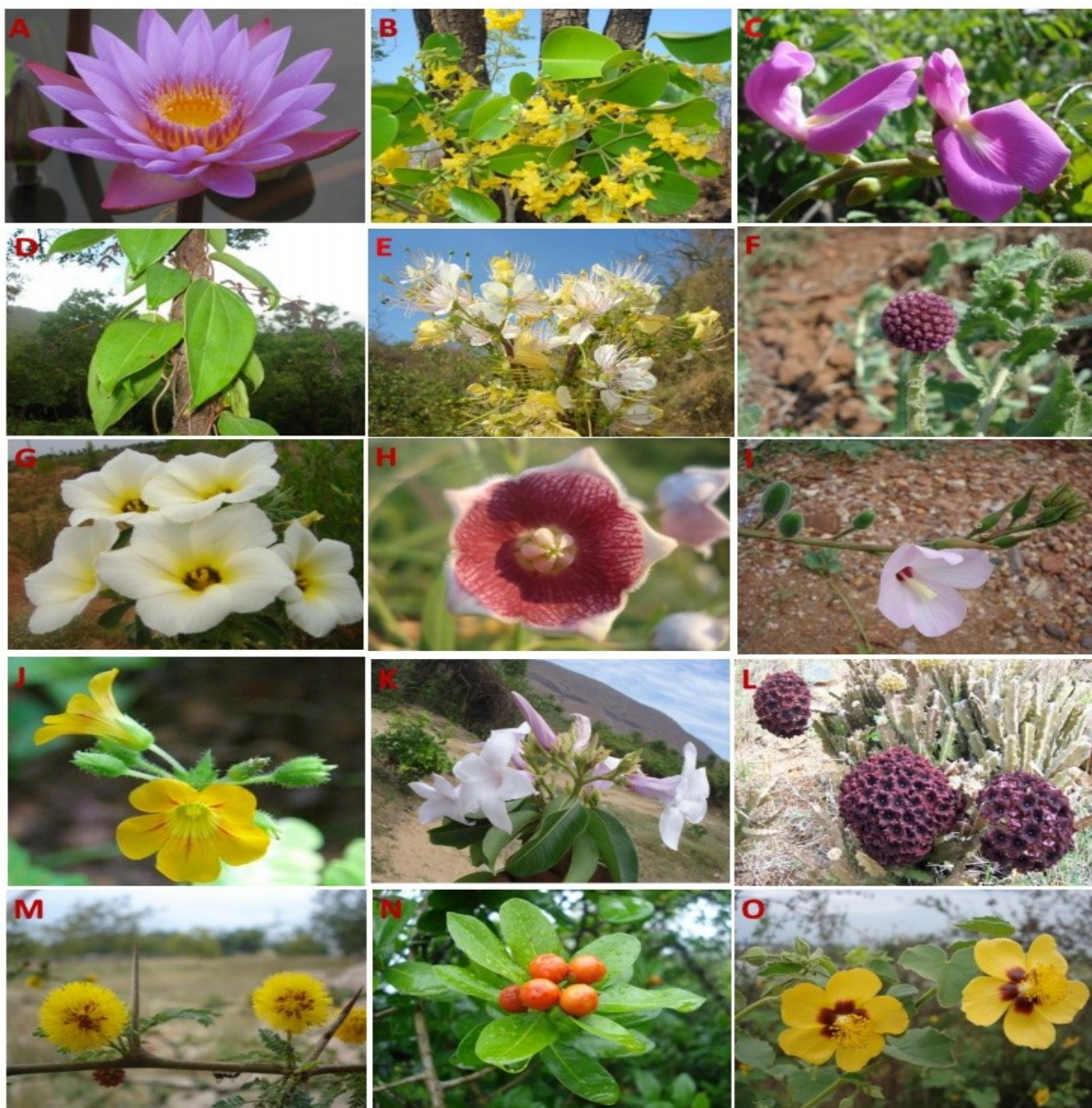


FIG.8 : Pictorial of Wild Ornamental Plants

A. *Nymphaea nouchali*.Burm.f. (AQUATIC ORNAMENTAL) **B.** *Pterocarpus santalinus* L.f. (TREE) **C.** *Canavalia gladiata*(Jacq.)DC. (INDOOR HERB) **D.** *Dioscorea oppositifolia* L. (ARCHED CREEPER) **E.***Crateva adansonii* DC. (FLORALTREE) **F.***Sphaeranthus indicus* L. (HERBACEOUS ORNAMENTAL) **G.***Turnera ulmifolia* L.var.elegans (HERBACEOUS ORNAMENTAL) **H.***Oxystelma esculentum* R. Br. (HOUSEHOLD CREEPER) **I.***Hibiscus lobatus* (Murr.)Kuntz (HOUSEHOLD HERB).**J.** *Biophytum sensitivum* (L.) DC. (INDOOR HERB) **K.***Cryptostegia grandiflora* R.Br. (ORNAMENTAL CREEPER) **L.***Caralluma lasiantha* (Wt.)N.E.Br. (ORNAMENTAL SUCCULENT) **M.***Acacia nilotica* (L.)Willd. (ORNAMENTALTREE) **N.** *Hugonia mystax* L. (HEDGE AND FENCING ORNAMENTAL) **O.***Abutilon hirtum* (Lam.)Sweet (ORNAMENTAL SHRUB).

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DISCUSSION AND CONCLUSION

Landscape gardening and bioesthetic planning is a recent trend to establish eco-friendly human habitats. We here documented the wild flora as ornamental utility. We propose exploration, collection and conservation of wild ornamental species is also one of the alternate methods to maintain the diversity of the species and conserve the endemic, rare and endangered species of ornamental interest. There is a lot of significance in recent years for the ornamental species in the utilization of various kinds and in the income generation among poor also in the export market of India. Wild ornamental species are also the sources for the medicinal significance (Asati and Yadav 2010). So the ornamental germplasm relatives are to be conserved. In the development of new hybrids, polyploids and mutation of ornamental interest it is essential to know wild ornamental species. The dynamic floriculture industry is constantly looking for new products, technologies and market niches. This process is largely based on research and development, and requires strong collaboration between many links of the production chain. Most modern scientific research in the field of new ornamental crops deals with the adaptability of new species to the environment and the regulation of their life cycle or propagation systems. New ornamental products can be developed by researchers and breeders only in collaboration with efficient producers and satisfied consumers, linked together in mutually beneficial ways. It is very easy for the propagation of wild species by traditional propagation methods. The cost of domestication and maintenance of wild ornamental species is also very less in comparison. We hope that this work will help the researchers and people who are interested in wild ornamental plants.

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