

Study of Ornamental Plants Found from Butterfly Park and One Tree Hill Garden of Kankariya, Ahmedabad, Gujarat, India

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ABSTRACT

Ahmedabad is situated in Central Gujarat, it is a largest city of Gujarat state. It is located at 23.03° N 72.58° E spanning an area of 205 km². Parimal garden, Law garden and gardens located in zoo of Kankariya are the major gardens of Ahmedabad city. The term ornamental plant is generally used in the horticultural trades. Ornamental plants are plants which are grown for display purposes, rather than functional ones. While some plants are both ornamental and functional, people usually use the term “ornamental plants” to refer the plants which have no value beyond being attractive, although many people feel that this is value enough. In Kankariya zoo there are numbers of plants growing in different gardens. Some of them are ornamental and some are of angiosperm. Present paper deals with ornamentally important plants found from gardens of Ahmedabad city.

Keywords: Ornamental Plants, Ahmedabad, Gujarat

I. INTRODUCTION

Ornamental plants are plants that are grown for decorative purposes in gardens and landscape design projects, as houseplants, for cut flowers and specimen display. The cultivation of these, called floriculture, forms a major branch of horticulture. Ornamental plants are the keystone of ornamental gardening, and they come in a range of shapes, sizes and colors suitable to a broad array of climates, landscapes, and gardening needs.

Some ornamental plants are grown for showy foliage. Their foliage may be deciduous, turning bright orange, red, and yellow before dropping off in the fall, or evergreen, in which case it stays green year-round. Some ornamental foliage has a striking appearance created by lacy leaves or long needles, while other ornamentals are grown for distinctively colored leaves, such as silvery-gray ground covers and bright red grasses, among many others. Commonly, ornamental plants are grown for the display of aesthetic features including, flowers, leaves, scent,

overall foliage texture, fruit, stem and bark, and aesthetic form. In some cases, unusual features may be considered to be of interest, such as the prominent thorns of *Rosa sericea* and cacti. Other ornamental plants are cultivated for their blooms. Flowering ornamentals are a key aspect of many gardens, with many flower gardeners preferring to plant a variety of flowers so that the garden is continuously in flower through the spring and summer. Depending on the types of plants being grown, the flowers may be subtle and delicate, or large and showy, with some ornamental plants producing distinctive aromas which paint a palette of scents in addition to colors. Similarly certain trees may be called ornamental trees. This term is used when they are used as part of a garden, park, or landscape setting, for instance for their flowers, their texture, form, size and shape, and other aesthetic characteristics. In some countries trees in 'utilitarian' landscape use such as screening, and roadside plantings are called amenity trees. Early USDA horticultural researchers published little of their experiments and innovations; however, their

legacy of information and new cultivars was indeed rich (Emsweller et al., 1937). He had to pay for his own travel as well as any other expenses not directly connected with its construction (Galloway, 1900). In the first USDA Annual Report, two chapters were devoted to ornamental plants (Hall, 1863). In 1871, a conservatory for maintaining tropical economic plants was constructed next to the building, with a “view to the propagation and distribution of such as might be deemed worthy of trait in suitable climates of the country” (Saunders, 1897). Stuart, in collaboration with Norton, developed the first practical method for producing large numbers of double-flowered seedlings (Stuart, 1912). The dooryard roses were so popular that the American Rose Society entered into a licensing agreement with the USDA for their propagation and distribution (McFarland, 1924).

II. MATERIALS AND METHOD

In field work the result embodied in this work based on study and collections during current year through well planned explorations in these areas. Number of extensive explorations of 10-20 days duration each, were made in different areas of Ahmedabad city with emphasis on intensive rather than extensive explorations. Collected plants were identified with the help of different valuable literature and floras. During the field trips we have taken photographs of various ornamental plants.

III. RESULT AND DISCUSSION

The above list includes the data from Roadside plantation, Public gardens, Private gardens, Ayurvedic gardens and Botanical gardens situated in Ahmedabad city. It shows that in total plant species 210, genera 124 and 47 families have been recorded from study area. New ornamental produces can be developed by researchers and breeders only in collaboration with efficient producers and satisfied consumers, linked together in mutually beneficial ways. The present

study suggested that this work will help the researchers and people who are interested in wild ornamental plants and there is thus considerable scope for looking at the meaning of domestic gardens and landscape practices in both urban and local people. An ornamental plant is grown for decoration, rather than food or other by-products. Ornamental plants may be grown in a flowerbed, shaped into a hedge or placed in a sunny apartment window. While the most apparent use of ornamental plants is for visual effect, they serve a few less obvious purposes. In present paper Table 1 shows Checklist of Ornamental Plants found from campus. Table 2 shows Habit of Ornamental Plants and Table 3 shows Colour of flowers. Plate 1 and 2 shows different photos of growing ornamental species in the campus.

1. *Althea rosea* L. (Holly hack) MALVACEAE

Habit: Shrub

Description: It is described as a biennial, as an annual, or as a short lived perennial. It is grow in a wide range of soils and can easily reach a height of about 8 feet.

Uses: It is benefited in fever during malaria. It helps in curing swelling and pain in mouth during ulcer.

2. *Althea alfa* L. (Marshmallow) MALVACEAE

Habit: Herb

Description : The stem of althea alfa is dying down in autumn. They can reach at the height of 6 feet. The leaves shortly petiole is roundish, ovate, 2 to 3 feet in height and about 1.5 inch broad.

Uses : The roots of marshmallow are used for diarrhea. It also used as herbal for cough.

3. *Acalypha indica* L. (Muktajhari) EUPHORBIACEAE

Habit: Shrub

Description: It is grown up to 1.2 meter. The leaves are broad ovate and the leaf. Base is rounded to shortly alternate.

Uses: *Acalypha indica* leaves are used in the medicine of Jaundice remedy. The sap of crushed leaves is used for scabies and other skin problems.

4. Aristolochia indica L.(Birthwort and snakeroot)

ARISTOLOCHINCEAE

Habit: Shrub

Description: It reached at the height of several meters on tree and covered the branches with thick foliage. The flowers are producing the seed once in the year.

Uses: The root of the plant is used as a stimulant, tonic. The plant is used as an aphrodisiac, anthelmintic and appetizer.

5. Asparagus racemosus Willd. (Satavari)

ASPARGACEAE

Habit: Shrub

Description: This plant is a woody climber growing to 1 to 2 meter in height. It is usually grown at low altitudes in shape and in tropical climate.

Uses: Generally used as a uterine tonic as a galatagogue. The roots of this plant are useful in treatment and control of diabetes, cancer, bacterial and fungal infection.

6. Antigonon leptopus Hook. (Ice-cream vell)

POLYGONECEAE

Habit: Climber

Description: This plant is fast growing climbing vine that holds vie tendrils, and is able to reach 25 feet or more in length. It has cordite sometimes triangular 2.5 to 7.5 cm length. The flowers are born in panicles.

Uses: This plant is preferred for consumption by the aboriginal in habitats of baja California in a way reminiscent of popcorn. The seeds are boiled and use for make cakes.

7. Begonia oblique L. (Begonia) BEGONIACEAE

Habit: Herb

Description: It is grow in subtropical and tropical moist climate. Begonia is the fifth largest angiosperm genus. The fruits are known as baccate.

Uses: The nutritional profile of the begonia is sufficient enough to treat other common conditions such as cough, consumption, and fever. Folk medicine practitioners used begonias as emetics, purgatives, and cathartics as well.

8. Callindra haematocephala Hassk. (Powder puff, fairy duster) FABACEAE

Habit: Shrub

Description: This plant is a shrub or rarely small trees growing 0.5-6 m tall with bipinnate leaves. The flowers are produce in cylindrical or globule inflorescence and have numerous long slender leaves and stamens.

Uses: Roots used in the treatment of hemorrhoids. Elsewhere, decoction of the flowers used as blood purifier and tonic.

9. Crinum asiaticum L. (Grand crinum lily)

AMARYLLIDACEAE

Habit: Herb

Description: This plant is mainly show in warmer regions as an ornamental. It is a bulb forming perennial producing and umbel of large, showy flowers that are praised by garden. All parts of the plant are however, poisonous if ingested.

Uses: This plant is very useful in inflamed joints and sprains. It is slightly use as a juice of leaves mixed with a little salt.

10. Cosmos bipinnatus Cav. (Mexicana ester)

ASTERACEAE

Habit : Herb

Description: Cosmos bipinnatus is considered a half-hardy annual, although plants may reappear via self-sowing for several years. The plant height varies from 2-4 ft. Its foliage is finely cut into threadlike segments.

Uses: It is used in western herbal medicine. It is used in the treatment of malaria, it also at as an anti-inflammatory.

11. Clitoria ternatea L. (Asia pigeon wings, Butterfly pea) FABACEAE

Habit : Herb

Description: It is perennial herbaceous plant , with elliptic , obtuse leaves. The color of its flowers a vivid deep blue , solitary , with light yellow markings. The fruits are 5-7 cm long, flat pods with six to ten seeds in each pod.

Uses: It is ascribed various qualities including memoryenhancing, antistress, anxiolytic, antidepressant, anticonvulsant, tranquilizing, and sedative properties.

12. Dahlia pinnata Cav. (Garden dahlia)
ASTERACEAE

Habit : Herb

Description : The stem is erect being branched only in the inflorescence. The leaves are usually simple, with leaflets that are ovate and 5-10 cm long. The 8 florets are ovate and colored pink to deep purple.

Uses : The root is rich in insulin so it is used for diabetics. An orange dye is obtained from the flowers and seed heads.

13. Lablab purpureus (L.) Sweet (Hyacinth Bean, Lablab Bean) FABACEAE

Habit : Climber

Description: The hyacinth bean is a very decorative vine that grows rapidly, likes Phoenix summer heat and can be used as a vegetable. It is also called Egyptian Bean, Pharaoh Bean, Bonavist Bean, Chinese flowering Bean, Shink Bean, Val Bean, Wild Field Bean, and Indian Bean.

Uses: The complete plant is edible but the dried seeds are toxic and should be well cooked in two changes of water. The young leaves can be eaten in salad, the older leaves can be cooked. The flowers are edible raw. The tuber and the young beans should be boiled. 'Ruby Moon' is a cultivar with purplish leaves.

14. Dieffenbachia picta Schott. (Dumb cane)
ARACEAE

Habit: Herb

Description: It is a perennial herbaceous plant with straight stem, simple and alternate leaves containing white spots and flecks, making it attractive as indoor foliage.

Uses: The juice of the plant has been used in the preparation with poisoned the arrow. The dieffenbachia is an anti cancer medicine.

15. Euphorbia splendens Var. (Christ plant)
EUPHORBIACEAE

Habit : Herb

Description : It is a succulent herb growing to 1.8 m tall, with densely spiny stems. The straight , slender spines, up to 3 cm long. The flowers are small,

subtended by a pair of conspicuous petal-like bracts, variably red, pink or white.

Uses: Its play role in folk medicines and used to cure cancer. Some Brazilians use it to cure warts it can also cure the spread of Schistosomiasis , a disease of liver.

16. Ficus benjamina L. (Weeping fig, Benjamin fig)
MORACEAE

Habit: Tree

Description : Ficus benjamina is a tree reaching 30 metres (98 ft) tall in natural conditions, with gracefully drooping branchlets and glossy leaves 6–13 cm ,oval with an acuminate tip.

Uses: The leaves are boiled in oil and applied on wounds . The pounded leaves and bark are applied as a poultice in the treatment of rheumatic headaches.

17. Ficus elastic Roxb.ex Hornem (Rubber fig, rubber tree) MORACEAE

Habit : Tree

Description : It is a large tree in the banyan group of figs, growing to 30–40 meters tall. It has broad shiny oval leaves 10–35 centimeters long and 5–15 centimeters broad; leaf size is largest on young plants, much smaller on old trees.

Uses : A decoction of the aerial rootlets is used as a vulnerary. The latex has been successfully used to treat five cases of trichuriasis.

18. Guaiacum officinale L. (Guaiacwood)
ZYGOPHYLLACEAE

Habit : Tree

Description : The small tree is very small growing, reaching about 10m (33ft) in height with a trunk diameter of 60cm. The purplish blue flower have a petals each, and yield yellow pods containing black seeds encapsulated separately in a red skin.

Uses : The soap fragrance oil of guaiacum comes from bonsai. This is one of the two species which yield the valuable Lignum vitae wood, the other being Guaiacum officinal.

19. Gloriosa superba L. (Climbing lili, tiger claw)
COLCHICACEAE

Habit: Herb

Description: It is a deciduous, summer-growing climber up to 1.5 m tall, with tuberous roots. The slender stems are produced annually and are upright to scrambling and can grow up to 4 m long. The stems die back in late summer and the tubers are dormant during winter.

Uses: The rhizomes are applied topically during child birth to reduce the labor pain. It has been used in the treatment of gout, infertility, ulcer, types and many types of internal diseases.

20. *Helianthus anus* L. (Sun flower) ASTERACEAE

Habit : Shrub

Description : The plant has an erect rough-hairy stem, reaching typical heights of 3 meters. Sunflower leaves are broad, coarsely toothed, and rough and mostly alternate. The outer flowers, which resemble petals, are called ray flowers.

Uses : Sunflowers can be used in phytoremediation to extract toxic ingredients from soil, such as lead, arsenic and uranium, and used in rhizofiltration to neutralize radionuclides and other toxic ingredients and harmful bacteria from water.

21. *Hibiscus rosa sinensis* L. (Jasud) MALVACEAE

Habit: Shrub

Description: It is a bushy, evergreen shrub or small tree growing 2.5–5 m tall and 1.5–3 m wide, with glossy leaves and solitary, brilliant red flowers in summer and autumn. The 5-petaled flowers are 10 cm in diameter, with prominent orange-tipped red anthers.

Uses: It can also be used for a pH indicator. The flower is additionally used in hair care as a preparation.

22. *Ipomoea quamoclit* L. (Cypressvine, cardinal) Convolvulaceae

Habit: Herbs

Description: It is grown up to 10 to 12 feet. It is broad up to 6 to 12 feet. It is an annual or perennial, herbaceous, twining vine growing 3–10 feet tall. The flowers are 1–2 inches long and 1 in in diameter, trumpet-shaped with five points, and can be red, pink or white.

Uses: The plant is used for abnormal behavior, sinking of voile and bleeding from cuts. The plant is used as a medicinal treatment like physical weakness.

23. *Ipomoea wrightii* Gray (Morning glory) CONVOLVULACEAE

Habit: Herb

Description: These plants having mainly compounds are alkaloids this plant is generally described as an annual perennial vine or fob. This plant has not native to untied states and is considered as an invasive species.

Uses: It is made into a tea or root decoction for pain, especially that which is caused by broken bones and physical trauma. The smoke from burning the dried leaves is inhaled to treat asthma. The plant is used in medicine.

24. *Ixora parviflora* L. (Jungle graunum) RUBIACEAE

Habit: Shrub

Description: The plant possesses lathery leaves ranging from 3 to 6 inch in length and produce large cluster of tiny flowers in the summer. Member of ixora prefers acidic soil and are a suitable choice for bonsai.

Uses: This plant is used in medicinal treatment, use as an antiseptic, astringent, blood purifier and many more.

25. *Jasminum sessiliflorum* Vahl (Jasmin) OLEACEAE

Habit: Shrub

Description: Jasmin tolerates a variety of soils which makes it excellent for many different gardens. It is grown in tropical and subtropical regions.

Uses : Jasmine has been used for liver disease (hepatitis). It is also used to cause relaxation (as a sedative), to heighten sexual desire (as an aphrodisiac), and in cancer treatment.

26. *Jasminum grandiflorum* L. (Royal jasmine, Spanish jasmine) OLEACEAE

Habit: Shrub

Description: This plant is grown in the warm temperature and sub-Tropical region. This plant is evergreen climbers.

Uses: The leaves are widely used as an ayurvedic herbal medicinal. The plant is useful in medicinal. This plant is widely cultivated as an ornamental plant.

27. Lantana camara L. (Bid sage and tick berry)

VERBENACEAE

Habit : Shrub

Description: It is shrub which can grow to around 2 meter and form dense thicket on a variety in the environment. Its ability to last for a relatively long time without Water.

Uses: It has been used in traditional herbal medicines for treating a variety of ailments, including cancer, leprosy, rabies, chicken pox, measles, asthma and ulcers.

28. Nephrolepis cordifolia L. (Boston fern)

NEPHROLEPIDACEAE

Habit: Shrub

Description: The found nephrolepis are 50 to 250 cm along and 6 to 15 cm broad with alternate pinnate. It is grown in hanging garden.

Uses: Decoction of fresh fronds for fever due to cold, chronic coughing, enteritis-diarrhea, infantile convulsions. Rhizome used as antibacterial; for coughs, rheumatism, chest congestion, anorexia.

29. Nepenthes khasiana Hook. f. (Pitcher plant)

NEPENTHACEAE

Habit : Herb

Description : Nepenthes usually consist of a climbing stem. From the stem arise alternate, sword-shaped leaves with entire leaf margins. At the end of tendril the pitcher forms. The pitcher starts as a small bud and gradually expands to form a globe or tube shaped trap.

Uses: The fluid of unopened pitcher is used as an eye drop to cure cataract and night blindness.

30. Petunia hybrida Hort Ex E. Vilm. (Grandiflora petunia) SOLANACEAE

Habit : Herb

Description : It has upright and mounded habit and medium to fine, oval, green leaves and sticky strongly scented stems. It produces large, funnel-shaped, grandiflora type blooms. Each bloom is red with

bright white edges. Its height is 25-38 cm long and 25-30 cm wide.

Uses: It is used as a remedy for restlessness and insomnia.

31. Poinsettia pulcherrima Wild. Ex Klotzsch (Poinsettia) EUPHORBIACEAE

Habit: Shrub

Description: It is a shrub of height 0.6-4 m. The plant bears dark green dentate leaves that measure 7-16 cm in length. The flowers are grouped within small structure found in the center of each leaf bunch and are called cyathia.

Uses: Poinsettias are used as pain relief, antibacterial and emetic. Folk uses include remedies for skin, warts, and toothache.

32. Passiflora edulis Sims (Maspop) PASSIFLORACEAE

Habit: Herb

Description: It is a shallow-rooted, woody, perennial that possesses many tendrils. Its stems can be smooth and pubescent. Leaves are alternate and palmately 3 lobed and occasionally 5 lobes. Flowers have five bluish white petals.

Uses : It is used to relieve aches in the body, such as stomach and muscle pain. The pectin in this fruit gives it antitussive properties, which is the basis for its use in relieving cough.

33. Rapis excelsa (Thunb.) A. Henry (Broad leaf lady palm) MORACEAE

Habit : Tree

Description : It grows up to 4 m in height in multi-stemmed clumps with glossy, palmate leaves divided into broad, ribbed segments. Leaf segments are single or few in young plants and increase to a dozen or more in mature plants; segments are divided to the petiole.

Uses : The powdered bark is used for cough, heart problem and lassitude.

Decoction of roots or ashes from burnt bark used for rheumatism; also used to stimulate blood circulation.

34. Rosa indica L. (Gulab) ROSACEAE

Habit: Shrub

Description: A small prickly or spiny shrub up to 1 m tall. Stem erect, branched, woody and prickly. Leaves compound with 3-5 leaflets, toothed, opposite, petiolate, and green. Flowers solitary, pinkish, red and white. Fruit sub lobos, fleshy and bright red.

Uses: The paste of the rose petals is applied over the wounds for quicker healing and its extract is used as eye wash in burning sensation of the eyes. Rose essence oil is used in aromatherapy to treat insomnia and blood pressure.

35. Sensevieria trifasciata Prain, (Snake plant)**ASPARAGACEAE**

Habit : Herb

Description: It is an evergreen perennial plant forming dense stand, spreading by way of its creeping rhizomes which is sometimes above ground, sometimes underground. Mature leaves are dark green with light gray-green cross-banding.

Uses : The plant is used to treat ringworm and fungal diseases. The leaf sap is applied directly on infected sores, cuts and grazes, it is also used to treat fungal and scabies infections.

36. Thumbergia erecta (Benth.) T. Anderson (Black eyed Susan vine) ACANTHACEAE

Habit: Shrub

Description: It is grown in warm temperature. Thumbergia alata has a vine habit and can grow height of 6 to 8 feet in tropical zones. It has twining shape with heart or arrow shaped leaves. The flowers have five petals and appear throughout the growing season.

Uses: The leaves are applied to the head as a remedy for headache. The leaf sap, combined with that of Hyptis pectinata, is drunk as a treatment for internal piles or for early rectal cancer. The leaf-sap is dripped into the eyes as a treatment for inflammation.

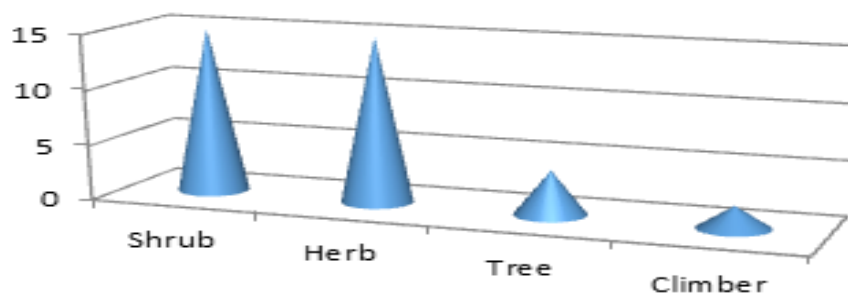
Table 1. Checklist of Ornamental Plants found from Butterfly Park and One Tree hill garden of Kankariya, Ahmedabad

Sr. No.	Botanical Name	Local Name	Family
1.	Althea rosea L.	Holly hack	Malvaceae
2.	Althea alfa L.	Marshmallow	Malvaceae
3.	Acalypha indica L.	Muktajhari	Euphorbiaceae
4.	Aristolochia indica L.	Birthwort and snakeroot	Aristolochiaceae
5.	Asparagus racemosus Willd.	Satavari	Asparagaceae
6.	Antigonon leptopus Hook.	Ice-cream vell	Polygonaceae
7.	Begonia oblique L.	Begonia	Begoniaceae
8.	Callindra haematocephala Hassk.	Powder puff, fairy duster	Fabaceae
9.	Crinum asiaticum L.	Grand crinum lily	Amaryllidaceae
10.	Cosmos bipinnatus Cav.	Mexicana ester	Asteraceae
11.	Clitoria ternatea L.	Asia pigeon wings, Butterfly pea	Fabaceae
12.	Dahlia pinnata Cav.	Garden dahlia	Asteraceae
13.	Lablab purpureus (L.) Sweet	Hyacinth bean	Fabaceae
14.	Dieffenbachia picta Schott	Dumb cane	Araceae
15.	Euphorbia splendens Var.	Christ plant	Euphorbiaceae
16.	Ficus benjamina L.	Weeping fig, Benjamin fig	Moraceae
17.	Ficus elastica Roxb. ex Hornem	Rubber fig, rubber tree	Moraceae
18.	Guaiacum officinale L.	Guaiacwood	Zygophyllaceae
19.	Gloriosa superba L.	Climbing lili, tiger claw	Colchicaceae
20.	Helianthus anus L.	Sun flower	Asteraceae

21.	Hibiscus rosa sinensis L.	Jasud	Malvaceae
22.	Ipomoea quamoclit L.	Cypressvine ,cardinal	Convolvulaceae
23.	Ipomoea wrightii Gray	Morning glory	Convolvulaceae
24.	Ixora parviflora L.	Jungle graunum	Rubiaceae
25.	Jasminum sessiliflorum Vahl	Jasmin	Oleaceae
26.	Jasminum grandiflorum L.	Royal jasmine, spanich jasmine	Oleaceae
27.	Lantana camara L.	Bid sage and tick berry	Verbenaceae
28.	Nephrolepis cordifolia L.	Boston fern	Nephrolepidaceae
29.	Nepenthus khasiana Hook. f.	Pitcher plant	Nepenthaceae
30.	Petunia hybrida Hort Ex E. Vilm	Grandiflora petunia	Solanaceae
31.	Poinsettia pulcherrima Wild. Ex Klotzsch	Poinsettia	Euphorbiaceae
32.	Passiflora edulis Sims	Maspop	Passifloruceae
33.	Raphis excelsa (Thunb.) A.Henry	Broad leaf lady palm	Moraceae
34.	Rosa indica L.	Gulab	Rosaceae
35.	Senseviera trifasciata Prain	Snake plant	Asparagaceae
36.	Thumbergia alata Bojer ex Sims	Black eyed Susan vine	Acanthaceae

Table 2. Ratio Of Habit Of Ornamental Plants.

Habit	No. of plant species
Shrub	15
Herb	15
Tree	4
Climber	2

**Figure 2.** Shows different habits of Ornamental Plants**Table 3.** Flower Colour Analysis Of Ornamental Plants

Colors of flower	No. of plant species
White	10
Pink	7
Red	6
Yellow	4
Orange	2
Blue	1

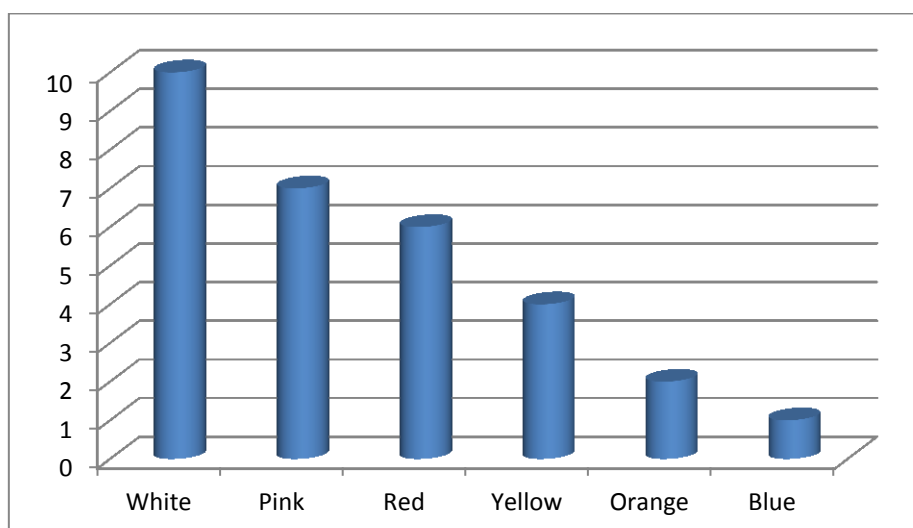


Figure 3. Shows Flower Colour Analysis Of Ornamental Plants

IV. ACKNOWLEDGEMENT

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Plate 1. showing different ornamental plant species growing in the Zoo campus

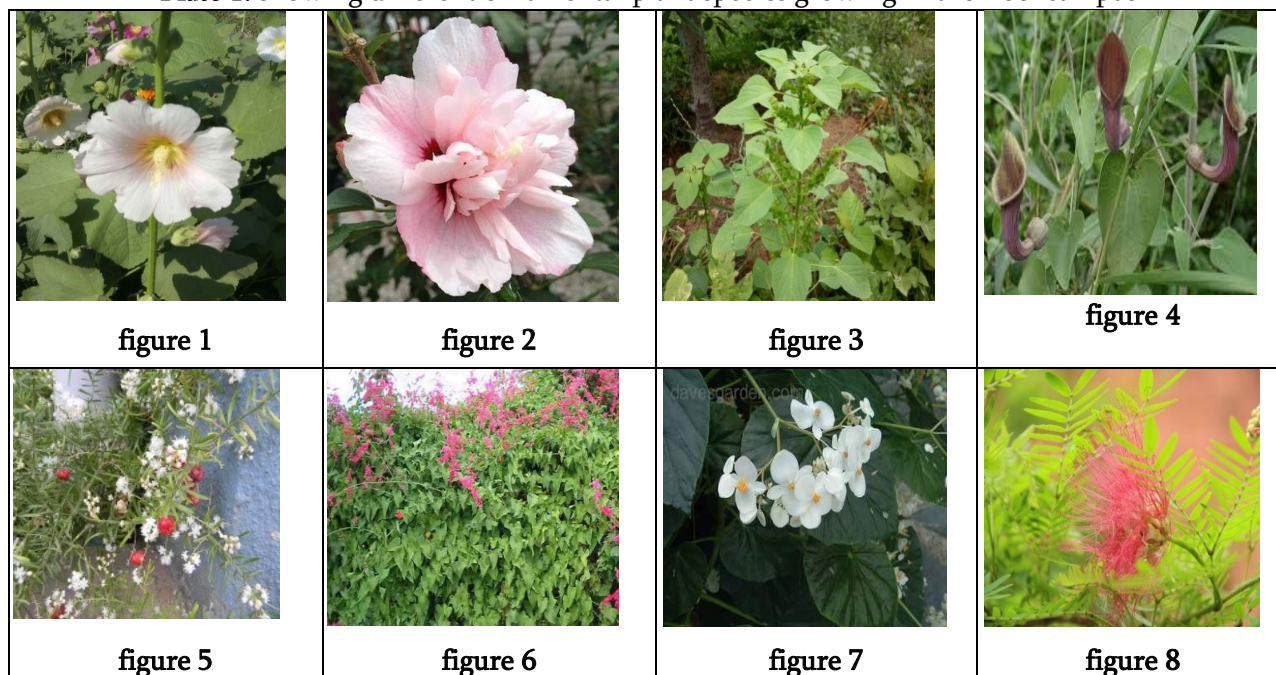




figure 9



figure 10



figure 11



figure 12



figure 13



figure 14



figure 15



figure 16



figure 17



figure 18



figure 19



figure 20



Figure 21



figure 22



figure 23



figure 24