

## A SURVEY OF ORNAMENTAL PLANTS IN BAUCHI ROAD CAMPUS, UNIVERSITY OF JOS, NIGERIA.

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### ABSTRACT

*The survey of ornamental plant on the Bauchi Road Campus of the University of Jos was conducted. The research was carefully carried out on the field, and the various plants species were assessed thereafter, samples were collected and taken to International Institute of Tropical Agriculture (IITA), herbarium for proper identification. Twenty three (23) ornamental plants, belonging to seventeen (17) families were identified in the course of this study. The family Liliaceae was most dominant and evenly distributed on the campus, while the family Piperaceae was list dominant. The ornamental plants identified are exotic species, while a few of the plants are native of Jos metropolis. Although, the basic reasons for the cultivation of ornamental plants on the campus is for beautification these species were observed to play other important roles such as spot of recreation and relaxation, as wind break and for research purpose.*

**Key Words:** *Ornamental Plants, Jos Metropolis, Exotic Species, Indigenes Species, Herbarium, Beautification.*

### INTRODUCTION

Plants are the basis of life and the primary producers in the structure of the ecosystem, hence all other organisms depends on them for survival. However, there are some plants that are aesthetically very pleasing and are cultivated for the sole purpose for beautification and these plants are called Ornamental Plants. Although the main purpose of cultivating ornamental plants is for beautification, many could serve other purposes such as landscaping, sites for visibility studies research and could also provide employment opportunities for people. According to Herbert (1976), the basic reason why people spare land for ornamentals and spend money on their cultivation is because they improve the quality of life. Plants used as ornamental can be potted plants, climbers, shrubs, herbs and trees. Beryl and Moly (1995) reported that landscape plants can substantially modify the climate of a localized area and consequently reduce energy cost. Ornamental plants possess photosynthesing attributes in the environment, due to the fact that they absorb

carbon dioxide from the atmosphere and this could help reduce global warming which now a disturbing trend, they also improve the breath of humans by making the environment fresher, they serves as lung of nature. According to Onuegbu (2005), ornamental plants beautify the environment and serve other purpose such as landscaping and tourist attraction. Ornamental pants provides employment opportunities to Horticulturist, Taxonomists and other professions as well, and could also be used for therapeutic purposes. Also, ornamental plants could be sold and serve as a sours of income. Ornamental plants could also boast economic growth, because they increase tourism activities and attract investors in the process. They also provides shelter and food for smaller organisms in the ecosystem, hence they serve as primary producers in the ecosystem. Jos metropolis is the centre of economic activities in plateau and the capital city of the State, Jos metropolis is known to have a specific climate and invariably the ornamental plants that strive in this region are indeed very unique and have strong adaptive

and defensive mechanisms, against harsh and extreme environmental conditions. In the course of this research, the ornamental plants within university of Jos, Bauchi Road Campus were investigated.

## MATERIALS AND METHOD

**Description of Study Area:** The Bauchi Road Campus of the University of Jos, was the study site of this research. It is placed on latitude N9° 58', 35.83<sup>11</sup>, Longitude E8° 53', 07.90<sup>11</sup> and its elevation is about 1138m above sea level. The mean annual rainfall varies from 137.75cm – 141.4cm in the southern parts of the state with maximum mean temperature of 85.7°F and 61.5°F minimum temperature. The relative humidity is 25.1% between November and March. About 90% of the rainfall is recorded between April and October and this comes with thunder storms of high intensity particularly at the beginning and towards the end of the rainy season. The months of March and April are the hottest, while December through February is very cool. As a result of the high elevation where the Bauchi Road Campus is situated, the annual temperatures are lower than the surrounding plains.

## Collection, Identification and Classification of Plants

The research was carried out randomly by visually assessing the plants on the Bauchi Road Campus of the University of Jos. Their details were entered into a field notebook, and then samples of the plants were collected using outlass to cut off important plants parts which were placed on a plant press and taken to the Herbarium of International Institute of Tropical Agriculture (IITA) Ibadan for proper identification. Also book such as Taxonomy of flowering plants by Gill, A handbook of West African weeds, by Akobundu and Agyakwa plants from the Niger Delta by Nyananyo, Flora of West Tropical Africa Vol 1-3 by Hutchinson and Dalziel. Accurate taxonomic references were employed in the process of identification of the ornamental plants collected.

## RESULT

The survey of ornamental plants in Bauchi Road Campus of the University of Jos resulted in the collection and identification of 23 ornamental plant species belonging to 17 families that are distributed around the campus. The result and observation made during the survey along with each species importance are presented and discussed below:

*Aleo barbadensis* Mill. (Schwenfurth)

Family: Liliaceae

It grows on rocky hills to a height of about 30cm in height. The leaves are about 8cm broad, with grey green stems. The fruits are about 2.5cm. it spreads to about of 15-20cm and

requires a temperature of 5°C. It grows well in a loamy soil. Propagation is vegetative through the use of offsets in summer. It is highly medicinal.

*Asparagus densiflorus* Bak. (Flagellaris)

Family: Liliaceae

It is called Asparagus fern. Green house/house not a true fern, but feathery sprays of needle-like foliage give a fern-like appearance. It grows to a height of about 38cm and grows best at a temperature of 7°C. It grows better in a loamy soil and out direct sunlight but in an aerated

condition. It is an erect plant with arching spiny glabrous orpubescent, smooth and rounded. The cladodes are about 1-1.5cm longsubulate, stiff, perianth of about 2mm long and padicle of about 4mm.

*Begonia lacunose* (Linn)

Family: Bignoniaceae

*Begonia* is a tuberous, rhizomatous and fibrous rooted plant. It does very well at a temperature range of 10-20°C. It grows very well in a soil. It is propagated by stem cuttings. The leaves are peltate, obliquely ovate-elliptic, very obtusely acuminate, 7 – 12 cm long, 5-7cm broad and

ciliated with numerous radiating nerves ballate with bristles on the upper surface. The stems are short. The nodes are crowded densely pilose. The stemens are about 30 and the ovary glabrous.

*Bougainviella sp* (comm.ex Juss)

Family: Nyctaginaceae

A climber which can grow to a height of about 2.4m. It strives best at temperature of about 7°C. It grows well in loamy soil. It can be propagated vegetatively. This is a perennial herb with tuberous or creeping rhizome. The leaves are radical, large, entire or much lobed. The

flowers are actinomorphic, hermaphrodite, umbellate, perianth with a short tube and 6 lobes, stemens are inserted on the perianth. It has an inferior ovary with a short filament. The fruit is berry and the seeds are numerous with conspicuous endosperm and embryo.

*Cassia sieberiana* DC

Family: Leguminosae

It is a very attractive ornamental plant with bright yellow flowers. It is grown in almost all kinds of soil. Bark dark, sometimes almost black deeply fissured. Flowering period is between January-June. It has a reddish-brown, very hard and heavy wood. The fruits are without a longitudinal septum, seldom straight, out 50 –

80 cm long and 1.5 diameter. The seeds are in one series. The bracts are linear – lanceolate, 1-2cm long, pubescent, pedicels; Leaflets 5 -8 pairs. Elliptic or oblong, shortly subacute or emarginated at apex, 5 -10 cm long, 2.5 – 5cm broad, the petiole and rachis are up to 20cm long.

*Chlorophytum comosum* Linn

Family: Liliaceae

A popular house plant with a cream and green, long narrow foliage and plantlets at the ends of long stalk. It is commonly called spider plant. It grows to a height of between 25-30cm and spread between 38-45cm. does very well in temperature range of prefers loam soil. The inflorescence is simple and develops before the leaves reach full size, the flowers are large and ornamental; Its found in moist places in the

savanna woodland. The petiole is not clearly developed, the segments of perianth is nearly 2cm long, 4mm or more broad; pedicels are jointed in the middle, bract is ovate, long-acuminate, as long as or longer than the flowers, these are obovate leaves are linear, 1 – 2.5cm broad while the fruits are oblong and elliptic.

*Codiaeicum pictum* Schetr Family:  
*Euphorbiaceae*

An attractive plant with variegated leaves. Grows to a height of between 45-60cm and spread of 38-45cm. It does well in temperature of 130C or

55<sup>0</sup>F. It prefers a loamy soil for effective growth. Tip cutting can be taken from March – June and this can be rooted in a propagator.

*Delonix regia* (Boj. ex Hook)  
 Family: Caesalpiniaceae

It is a native of Madagascar. It is commonly known as flamboyant tree or the forest. It grows to a height of 18m (60 feet), a crown of 0.6m (2 feet) with feathery leaves. Flowers open during night and fully out from 9.00am lasting only two days. Though, ornamental but are also used as avenue plants. The leaves are

pinnate up to 45cm long, pinnae 11 – 18 pairs leaflets, opposite, numerous, oblong rounded and asymmetrical at the base. The apex is about 1 cm long and 2.5 – 4mm broad, the fruits are elongated – oblong, 30 – 60 cm long and 5 cm broad. The seeds are numerous and are about 2.5cm long

*Dracaena sp* (Willd.)  
 Family: Liliaceae (Agavaceae)

The tree grows to a height of between 20-59ft and about 2ft. in girth. It grows in a swamp forest. Bark grey, flaking off in regular patches, slash thin, greenish, exuding a grey slightly gummy sap. The leaves which are spirally crowded along the branches are smaller and relatively broader. This palm – like tree grows to a height of about 30 – 45ft high with several branches, the leaves are aggregated towards the end of the branch; the flowers are creamy white

in large shortly branched pendulous inflorescence of 3 – 4ft long, the fruits appear orange to red. The plant is often planted as a fence or ornamental tree. The pedicles are conspicuous leaving fruiting pegs 4 – 5mm long. The leaves are 6 – 7cm broad, very long with numerous subcontiguous nerves. The perianth is about 14mm long and fruits nearly 2cm in diameter.

*Dieffenbachia picta*  
 Family: Araceae

This is a foliage plant with a poisonous sap that is liable to cause speech impediment if in contact with the mouth. Commonly known as dump cane. Strives best in temperate range of 130C and prefers a loam soil for effective

growth. Propagation is by stem cutting and rooting them in a propagator. It is a native of Brazil and West Indies. It has straight stem with clusters that thickly veined leaves of their sheath – like petioles.

*Ficus exasperata* Vahl  
 Family: Moraceae

It is commonly known as rubber plant. It grows to a height of 0.9-1.8M (3-6ft) and spread to 45-75cm. it prefers a loam soil for good growth. It is readily recognized by its distinctive leaves which closely resemble the leaves of Asian

Indian Rubber tree. A tree or epiphytic in habit with fissured bark. The leaves are 5-9 inches long and 1.5 inches broad. Fruits develop in March in pairs on the leaf axils, shortly stalked about 0.5 inches. It is glabrous.

*Gardenia erubescens* Stapf and Hutch

Family: Rubiaceae

A wide genus wide spread in the old world tropics. About 5-8 Nigerian species grow in the savanna. The flowers are conspicuously white at first and turn yellow. The tubular calyx have prominent teeth and corolla – tube usually being slender with 5-6 spreading lobes. The stamens are stall less and the anthers being attached to the throat of the corolla-tube and alternating

with the remains of the calyx at the apex and they contain numerous strong seeds. It grows to a height of 60ft and a girth of 6ft. flowering is between January to March and September. Fruiting is between April to August. It has yellowish–white sapwood, dark brown or almost black at the heart.

*Hedera helix* Engl

Family: Araliaceae

A woody plant, up to 20m in height. It climbs by means of adhesive roots on trees and the walls of houses also creeping along the ground. The leaves are evergreen and glabrous when old. It

grows in all kinds of soil and propagation is by cutting 7.5-13cm long from the tip of the shoot in July-August.

*Jacaranda mimosifolia* D. Don

Family: Bignoniaceae

It is deciduous tree and found in the tropics mainly America. It is an introduced plant to Jos. It has a finely bipinnate leaves. It is a very attractive plant with violet coloured flowers. It is good in parks and estate planting it is propagated by seeds and requires a loam soil for

good growth. It is a relatively small tree up to 3 – 4 m in height. Inflorescence is a panicle and the flowers have petals that are blue – maroon in colour. The plant shades its leaves as at the time of flowering.

*Kalanchoe pinnatum* Bak

Family: Crassulaceae

It is a poisonous plant. This stone crop family is closely related to the goose berry family known to have been the cause of epidemic among grazing animals Krimtsiekte-in South Africa. The responsibility lies not on the small amount of the piperidine alkaloids present but more

probably with isoprene derivative of still unknown structure. Quite a few *Kalanchoe* species that are kept as indoor ornamentals have toxic principle in their roots but they are of a little importance in toxicological practice.

*Lantana camara* Linn

Family: Verbenaceae

A shrub, brack narrow, linear flowers showing white, yellow, red or pink leaves, petioles and peduncles pilose or strigose not or very sparsely glandular, stem usually armed with short

recurved prickles, erect or spreading much branched, square stemmed shrub, usually with short prikless and showing flowers in converse heat.

*Parkinsonia aculeate*

Family: Caesalpiniaceae

A small exotic tree introduced by Arabs. Grows up to 25ft in height and strives very well in shades. The leaves are bipinnate with one or two pairs pinnae which consist of broad, flat, mid – rib. Fruits are jointed pods varying in length with about 1 – 6 seeds. This is an exotic shrub with fairly conspicuous yellow flower. The

branchlets are armed with rigid prickles, leaves are bi-pinnate; the rachis are elongate; the spine are pointed with numerous very small obovate leaflets along the margin; the flowers are in small axillary racemes, pedicels up to 1.3cm long, slender and glabrous. The petals are 5, stamens are 10 and the fruits are linear.

*Peperomia obtusifoliab* Brenan

Family: Piperaceae

A plant with open habit and glossy green leaves up to 5cm (2inches) long. It grows to a height of about 18cm and spread of 20cm and strives well at a temperature of 10°C. it does well in a loam soil. Propagation is by cutting. This is An annual her, usually erect about 10 – 30cm high

with delicate leaves. The inflorescence is a spike, axillary as well as terminal and about 1 - 8cm long. The flowers are many and scattered on the spike. The fruit is a minute 1 –seeded berry.

*Pilea cardierie* Linn

Family: Urticaceae

The silvery bands on the rather crindely leaves give rise to the common name. the foliage looks as though it has been painted with aluminium

paint. It grows tall and spread to about 20cm. it does well at a temperature of about 10°C and grows very well in a loam soil.

*Plumeria acuminata* Buroh

Family: Apocynaceae

It is native of Mexico but it is planted throughout the tropics. It has a spread of 9m (30ft). it has thick branches and twigs from which a latex flows conspicuously. The waxy, white flowers each about 75mm across are

borne on heads of as many as 6 flowers each and have fragrance, the flowers are made into wreaths and garlands and few anemones take place in the tropics unaccompanied by the heavy scent of tree.

Rhododendron sp Linn

Family: Ericaceae

This is a tree with a laurel – like ever green or deciduous leaves. The leaves are alternate, entire and undivided. The flowers are mostly terminal racemes, less often axillary and sometimes single corolla usually campanulate, rotated – shape or funnel shaped, generally

*Sanveviera sp* Liberical/Ger & Labr

Family: Liliaceae

It is an herbaceous plant with large leathery leaves growing in tufts from and underground stock. It is commonly called snake plant. It does very well at temperature of between 50°F to 75°F. This is a genus of about 60 species native

pentamerous. The fruits are woody septical capsule with numerous very small seed. It is mainly found in East Asia temperate region, North America and only about four species in the mountains of Europe.

to tropical and south Africa, Madagascar and Arabia. The perianth is 5cm long, the pedicels is jointed above the middle and the leaves are broadly oblanceolate marked with transverse dark and light green bands.

*Zebrina pendula* schnizl

Family: Commelinaceae

This is a foliage plant and it closely resemble *Tradescatia fluminensis* but with larger and more purple leaves. The upper surface has green and silver stripes. It does well at temperature range of 15°C or 60°F and prefers a loam soil. Propagation is by cutting. The stem is between 5in – 2ft high, decumbent and stoloniferous below and rooting from lower nodes, leaves

appear purple in colour. The flower usually open fully for a short time during the day. The seeds are the outside with a circular or Usually crowded, the testa characteristicly marked on elliptic callosity called the embryostega, under which the embryo is situated.

**Table 1:** List of ornamental plants investigated in University of Jos, Bauchi Road campus.

S/No.	Name of Species	Family
1	<i>Aloe barbadensis</i> Linn	Liliaceae
2	<i>Asparagus densifloru</i> Linn	Liliaceae
3	<i>Begonia</i> sp Linn	Bignoniaceae
4	<i>Bougainviella</i> sp Linn	Nyctaginaceae
5	<i>Cassia sieberiana</i> Linn	Leguminosae
6	<i>Chlorophytum comosum</i> Ker-Gawl	Liliaceae
7	<i>Codiaeicum pictum</i> Schetr	Euphorbiaceae
8	<i>Delonix regia</i> Raf	Leguminosare
9	<i>Dracaena</i> sp Vand, Diss.	Liliaceae
10	<i>Dieffenbachia picta</i> Linn	Araceae
11	<i>Ficus exasperata</i> Vahl	Moraceae
12	<i>Gardenia erubescens</i> Stapf and Hutch	Rosaceae
13	<i>Hedera helix</i> Engl	Araliaceae
14	<i>Jacaranda mimosifolia</i> D. Don	Bignoniaceae
15	<i>Kalanchoe pinnatum</i> Bak	Crassulaceae
16	<i>Lantana camara</i> Linn	Verbenaceae
17	<i>Parkinsonia aculeate</i>	Leguminosae
18	<i>Peperomia obtusifolia</i> Brenan	Piperaceae
19	<i>Pilea cardierei</i> Linn	Urticaceae Linn
20	<i>Plumera acuminata</i> Buroh	Apocynceae
21	<i>Rhododendron</i> sp Linn	Eicaceae
22	<i>Sansevieria</i> sp Liberical/Ger & Labr	Liliaceae
23	<i>Zebrina pendula</i> /schnizl	Comelinaceae

## DISCUSSION

Ornamental plants are indely distributed around the Bauchi Road Campus of the university of Jos. The survey showed that plants species of the family Liliaceae were most dominant and evenly distributed around the campus, while plants of the family Piperaceae were the list dominant species on the campus. During the course of this survey, the ornamental plants were found to be authentically pleading to the eye and were deliberately used for the beautification of the environment. The study revealed that different species of ornamental plants exist in university of Jos, Bauchi Road Campus. The plants are of different habit and families although some belong to the same families. The ornamental plants on the campus were found to perform other purpose such as landscaping, sites for visibility studies and research works, and relaxation point apart from their main purpose of beautification. Finally, this survey has shown that ornamental plants are very important plant species that refreshes the environment and could be used for the beautification of home, offices and the surrounding at large.

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