Original Research Article

Study Of Monocot Ornamental Plants Under Prayagraj Agro-Climatic Conditions

ABSTRACT

An experiment was carried out during July 2022 to December 2022 in Shade net, Department of Horticulture,SHUATS,Prayagraj, in Completely Randomized Design (CRD) with different monocot Ornamental plants replicated three times.This houseplants that are also known to remove harmful chemicals from the air, formaldehyde being its chemical of choice to remove the air. Different plants used in this experment were *Philodendron ceylon, Philodendronwendlandi,Philodendronoxycardium,Thaumatophyllumxanadu ,Philodendroner ubescens ,Alocasiareginula,Syngoniumpodophyllum and Monestradelicosa.* It is concluded the present investigation that the Monocot Ornamental plants under study showed significant variation in all the Characters observed.The Variety Philodendron ceylon Reported significantly better performance in sustainable percentage,Sapling height, plant height,leaves length,Canopy radius, root spread and the another Variety *Thaumatophyllum xanadu* Reported significantly better performance in No,of leaves ,leaves length and plant spread Hence the varieties *Philodendron ceylon* & *Thaumatophyllum xanadu* could be recommended for the Prayagraj Agro climatic condition.

Keywords: Ornamental Plants ,CRD, Formaldehyde, Canopy Radius , Root Spread , Sustainable Percentage

Introduction

Monocot ornamental plants means single cotyledon emerging for the embryo,ornamental plants are plants that are primarily grown for their beauty but also for qualities such as how they shape physical space. ornamental plants that can provide height, privacy, and beauty for any garden. One of the beauties of ornamental Plants is that they are very versatile and low maintenance.Almost any types of plant have ornamental variety/varieties: trees, shrubs, climbers, grasses, succulents, aquatic plants, herbaceous perennials and annual plants. Non-botanical classifications include houseplants, bedding plants, hedges, plants for cut flowers and foliage plants. The cultivation of ornamental plants comes under floriculture and tree nurseries, which is

a major branch of horticulture.
Monocot Ornamental plants like Philodendron varieties like philodendron ceylon, philodendron wendlandi, philodendron oxycardium,philodendron xanadu,philodendron erubescens and other monocot plants like Alocasia reginula,Syngonium podophyllum and Monestra delicosa.

Philodendron is a large genus of flowering plants in the family Araceae. Many are grown as ornamental and indoor plants. The name derives from the Greek words philo-"love, affection" and dendron-"tree". Widely grown as indoor ornamental plants.
The ornamental Foliage make excellent container plants for difficult dark,shady, and ignored places spots.These beautiful foliage plants come in large range of sizes,colors,and growing habits.

ornamental Foliage are common houseplants that are also known to remove harmful chemicals from the air, formaldehyde being its chemical of choice to remove the air.

ornamental Foliage thrive when placed in indirect light .in theire natural tropical habitat,they rarely ever receive direct sun. However they are resilient and will tolerate nearly all light conditionds including direct sunlight and low light in small quantities.

Ornamental Foliage is usually green but may be coppery,red or purplish parallel leaf veins are usually green or sometimes red or white.shape and shize and texture of the leaves vary considerably ,depending on species and maturity of the plant .the fruit is Berry.

Ornamental Foliage Symbolize Health and Abundance.Benefits of ornamental Foliage :Aesthetically Appealing, Climate Regulator and Air purifier, Major Stress Reliever, Improve quality of space.

Ornamental Foliage plants are very quick growing plants; they can grow up to 4 inches a week during the Spring and Summer.The easiest way to propagate your ornamental Foliage is by Stem Cuttings. However, There are other propagation methods like Air layering and division.ornamental Foliage make excellent container

plants for difficult dark,shady, and ignored places spots.

2.MATERIALS AND METHODS

A Field experiment entitled “Study of Monocot Ornamental Plants Under Prayagraj Agro-Climatic Conditions” was carried out at the experimental field of the Department of Horticulture, Naini Agriculture Institute, Sam Higginbottom University of Agriculture, Technology and Sciences, Prayagraj to find out the best performing variety for this region.The experiment was laid out in Completely Randomized Design (CRD)with 8 Varities and each Varities was replicated Three times. Geographical location of the experimental siteThe experimental site is being located at a latitude of 25.41º North and longitude of 81.84 º East, with an altitude of 98 meters above the mean sea level (MSL).Climatic conditions in the experimental area The area of Prayagraj comes under humid sub-tropical climate, which experiences warm humid monsoon, hot dry summer and cold dry winter. The annual mean temperature is 39 ºC while monthly mean temperatures are 28-40 ºC. The daily average maximum temperature is about 38 ºC, and the minimum temperature is 27 ºC. The average annual rainfall received is 1.12 mm. At this location, the temperature reaches upto 41 ºC-43 ºC and the minimum temperature recorded was 25 ºC-28 ºC. The relative humidity ranges in this location ranges between 28.44% - 94%.

Statistical Analysis

Data were subjected to analysis of variance (ANOVA) using OPISTAT Software version 9.3

3.RESULTS AND DISCUSSION

Data in Table 1. Significantly ,The Sapling Parameters was observed in the variety Philodendronceylon(4.5cm) ,Philodendron wendlandi (2.1cm), Philodendron oxycardium (2c m), Syngonium podophyllum (2.1cm), Xanadu (3.4),Monstera delicosa(2cm), Philodendron erubescens(4.5cm).

Significantly, the higher Sapling Sustainability percentage was observed in the variety Philodendron ceylon(100) ,Philodendron wendlandi(66.6), Philodendron oxycardium (88.8), Alcasia reginula (33.3), Syngonium podophyllum (88.8), Xanadu(88.8),Monstera delicosa

(66.6), Philodendron erubescens(77.7).

Data in Table 2. Significantly, the maximum Plant height was observed in the Philodendron ceylon(22.9 cm)which is found to be at par with Philodendron erubescens (17.8cm) , Monstera delicosa(15.6cm),Syngonium podophyllum(13.8cm),Philodendron oxycardium (12.6) ,Xanadu (8.4cm),Philodendron wendlandi(8.2cm)While, the minimum plant Height was observed in the Alocasia reginula(3.1cm)

Significantly, the maximum No.of leaves was observed in theXanadu (18.8) which is found to be at par with Philodendron ceylon (11.5),Philodendron erubescens(10.1),Syngonum podophyllum (6.3) ,Philodendron wendlandi (5.6), Philodendron oxycardium (5.5) ,Monstera delicosa (4.3),While, the minimum No .of leaves was observed in the Alocasia reginula(2.7)

Significantly, the maximum leaves length was observed in the Philodendron ceylon (18.1cm) which is found to be at par with Philodendron erubescens (12cm), Philodendron oxycardium (9.8cm) ,Monstera delicosa (8.6cm), Philodendron wendlandi (6.8cm), Syngonium podophyllum (7.4), Alocasia reginula (6.5cm).While, the minimum leaves length was observed in the Xanadu (5.5cm)

Significantly, the maximum primary branches was observed in the Xanadu (18.8) whichis found to be at par with Philodendron ceylon (11.5),Philodendron erubescens (10.1), Syngonum podophyllum (6.3), Philodendron wendlandi (5.6), Philodendron oxycardium (5.5) ,Monstera delicosa (4.3), While, the minimum primary branches was observed in the Alocasia reginula(2.7)

Significantly, the maximum Plant spread was observed in the Xanadu (25.5cm) Philodendron ceylon (24.3cm)which is found to be at par with Syngonium podophyllum (17.6cm), Philodendron erubescens (15.7cm), Philodendron wendlandi (9.9cm), Philodendron oxycardium (8.8cm), Monstera delicosa (5.9cm),While the minimum plant Height was observed in the Alocasia reginula(3.2cm)

Significantly, the maximum Canopy radius was observed in the Philodendron ceylon (18.76cm) which is found to be at par with Philodendron erubescens(14cm),Xanadu (14cm),Philodendron wendlandi(4.8cm), Syngonium podophyllum(4,8cm),Monstera

delicosa(4.3cm),Alocasia reginula(3cm) ,While the minimum Canopy radius was observed in the Philodendron oxycardium(2.8cm)

Significantly, the maximum Root spread was observed in the Philodendron ceylon (37.25cm) which is found to be at par with Philodendron erubescens(28cm),Xanadu (28cm), Philodendron wendlandi(9.6cm),Syngonium podophyllum(9.6cm),Monstera delicosa(8.6),Alocasia reginula(6cm) ,While the minimum Root spread was observed in the Philodendron oxycardium(5.6cm)

Data in Table 3.The data on estimated Qualitative leafe characters of Qualitative leafe charactersall the varities were recorded and significant differences were observed at 180 days after potting.

Among all the varities, leaf shape is different for monocot ornamental plants, the leafe shape was observed in the Philodendron ceylon is oval ,Philodendron wendlandi is broadly lance shaped, Philodendron oxycardium is heart shaped, Alocasia reginula is arrow shaped, Syngonium podophyllum is Juvenile-Ovate ,heart shaped Adult-Arrow shaped leave, Thaumatophyllum xanadu is deeply divided drooping stage ,Monstera delicosa is heart shaped and Philodendron erubescens is heart shape

Among all the varities, leaf texture is different for monocot ornamental plants,the leafe texture was observed in the Philodendron ceylon is smooth ,Philodendron wendlandi is smooth,Philodendron oxycardium is smooth, Alocasia reginula is pluffy, Syngonium podophyllum is smooth,Thaumatophyllum xanadu is smooth ,Monstera delicosa is rough and Philodendron erubescens is smooth.

Among all the varities, leaf margin is different for monocot ornamental plants,the leafe edge was observed in the Philodendron ceylon is entire,Philodendron wendlandi is entire,Philodendron oxycardium is entire, Alocasia reginula is entire, Syngonium podophyllum is lobed,Thaumatophyllum xanadu is lobed ,Monstera delicosa is parted and Philodendron erubescens is entire.

Among all the varities, leaf Pigmentation is different for monocot ornamental plants,the leaf

Pigmentationwas observed in the Philodendron ceylon is Yellow glossy, gradually yellowish green, Philodendron wendlandi is Green and purple below in juvenile la ter turns gree ,Philodendron oxycardium is Bright kelly green, Alocasia reginula is Deep shiny blackish green, Syngonium podophyllum Glossy is pink in juvenile later turns int o pinkish green, Thaumatophyllum xanadu is Dark sacramen to green ,Monstera delicosa is Deep green and Philodendron erubescens is Variegated,pink and green.

Among all the varities, leaf venation is different for monocot ornamental plants,the leafe venation was observed in the Philodendron ceylon is Pinnate, Philodendron wendlandi is Pinnate,Philodendron oxycardium isPinnate, Alocasia reginula is Pinnate, Syngonium podophyllum isPinnate,Thaumatophyllum xanadu is Pinnate ,Monstera delicosa isPinnate and Philodendron erubescens is Pinnate.

Among all the varities, leaf vine is different for monocot ornamental plants,the leafe vine was observed in the Philodendron ceylon is No Vine, Philodendron wendlandi is No Vine,Philodendron oxycardium is Vine, Alocasia reginula isNo Vine, Syngonium podophyllum is No Vine,Thaumatophyllum xanadu is No Vine ,Monstera delicosa is Vineand Philodendron erubescens is No Vine..

TABLE 1. SAPLING HEIGHT AND SAPLING SUSTAINABILITY PERCENTAGE OF DIFFERENT MONOCOT ORNAMENATL PLANTS FOR 15 DAYS.

Treatment	Varities	Sapling height	Sapling sustainability percentage
V1	*Philodendron ceylon*	4.5	100
V2	*Philodendron wendlandi*	2.1	66.6
V3	*Philodendron oxycardium*	2.0	88.8
V4	*Alocasia reginula*	1.1	33.3
V5	*Syngonium podophyllum*	2.1	88.8
V6	*Thaumatophyllum xanadu*	3.4	88.8
V7	*Monatera delicosa*	2.0	66.6
V8	*Philodendron erubescens*	4.5	77.7
Mean		4.812	1308.81
F-Test		S	S
SE(M)		0.061	0.589
CD at 5%		0.185	1.781
CV		3.910	1.338

TABLE 2. PLANT HEIGT,N0.OF LEAVES,LEAVES LENGTH,NO.OF PRIMARY BRANCHES,PLANT SPEAD,CAANOPY RADIUS,ROOT SPREAD OF DIFFERENT MONOCOT ORNAMENATL PLANTS FOR 90 DAYS.

Varities	Plant height	No. of leaves	Leaves length	No. of primary branches	Plant Spread	Canopy Radius	Root Spread
Philodendron ceylon	22.9	11.5	18.1	11.5	24.3	18.76	37.52
Philodendron wendlandi	8.2	5.6	6.8	5.6	9.9	4.8	9.6
Philodendron oxycardium	12.6	5.5	9.8	5.5	8.8	2.8	5.6
Alocasia reginula	3.1	2.7	6.5	2.7	3.2	3	6
Syngonium podophyllum	13.8	6.3	7.4	6.3	17.6	4.8	9.6
Thaumatophyllum xanadu	8.4	18.8	5.5	18.8	25.5	14	28
Monatera delicosa	15.6	4.3	8.6	4.3	5.9	4.3	8.6
Philodendron erubescens	18.5	0.11	12	10.1	15.7	14	28
Mean	12.8	8.10	9.3	8.1	13.8	8.3	16.6
F-Test	S	S	S	S	S	S	S
SE(M)	0.12	0.4	0.1	0.4	0.2	0.1	0.2
CD at 5%	22.9	1.2	0.3	1.2	0.7	0.2	0.6
CV	8.2	8.7	2.1	8.7	3.1	1.7	2.1

TABLE 3. LEAF SHAPE,LEAF TEXTURE,LEAF EDGE,LEAF PIGMENTATION,LEAG EDGE,VINEOF DIFFERENT MONOCOT ORNAMENATL PLANTS FOR 90 DAYS.

Varities	LEAF SHAPE	LEAF TEXTURE	LEAF EDGE	PIGMENTATION	LEAF EDGE	VINE
Philodendron ceylon	Oval	Smooth	Entire	Yellow glossy,gradually yellowish green	Pinnate	No Vine
Philodendron wendlandi	Broadly lance-shaped	Smooth	Entire	Green and purple below in juvenile later turns green	Pinnate	No Vine
Philodendron oxycardium	Heart shaped	Smooth	Entire	Bright kelly green	Pinnate	Vine
Alocasia reginula	Arrow shaped	Pluffy	Entire	Deep shiny blackish green	Pinnate	No Vine
Syngonium podophyllum	Juvenile-Ovate,heart shaped Adult-Arrow shaped leaves	Smooth	Lobed	Glossy pink in juvenile later turns into pinkish green	Pinnate	No Vine
Thaumatophyllum xanadu	Deeply divided, drooping shape	Smooth	Lobed	Dark sacramen to green	Pinnate	No Vine
Monatera delicosa	Heart shape	Rough	Parted	Deep green	Pinnate	Vine
Philodendron erubescens	Heart shape	Smooth	Entire	Variegated,pink and green	Pinnate	Vine

CONCLUSION:

It is concluded the present investigation that the Monocot Ornamental plants under study showed significant variation in all the Characters observed. The Variety Philodendron ceylon Reported significantly better performance in sustainable percentage, Sapling height, plant height, leaves length ,Canopy radius ,Root spread and the another Variety Thaumatophyllum xanadu Reported significantly better performance in No, of leaves ,leaves length and plant spread Hence the varieties Philodendron Ceylon & Thaumatophyllum xanadu could be Recommended for the Prayagraj agro climatic condition.

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