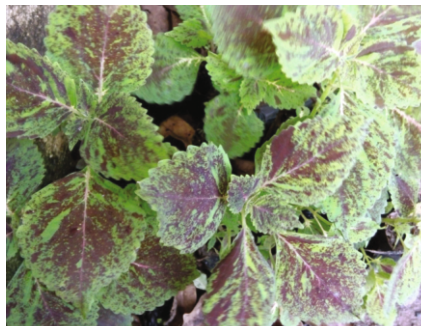


Technical Bulletin No. 59

*Germplasm Resources
of
Ornamental Coleus
in Goa*



Dr. Safeena S.A, Dr. M. Thangam and Dr. N. P. Singh



ICAR-CENTRAL COASTAL AGRICULTURAL RESEARCH INSTITUTE

(INDIAN COUNCIL OF AGRICULTURAL RESEARCH)

ELA, OLD GOA -403402, GOA, INDIA

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HORTICULTURE SCIENCE SECTION

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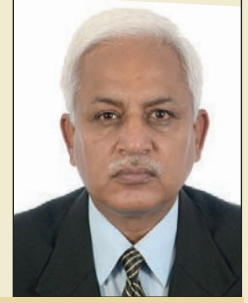
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FOREWORD

Solenostemon scutellarioides syn. *Plectranthus scutellarioides* commonly known as Ornamental Coleus are a group of attractive ornamental plants with large vibrant and multicoloured leaves. It is native to tropical Asia, Africa and Australia. Coleus is grown primarily for the impact of its splendid and marvellous foliage which provides colour throughout the year. The ornamental coleus varieties range in colour from light green to deep purple and all variations in between. They are promising ornamental crops especially for landscaping the shady areas with vibrant colours and patterns. They provide a bold texture and a thick mass in the landscape because of its striking leaves, which have a sharp contrast in colour. ICAR - Central Coastal Agricultural Research Institute, Ela, Old Goa has collected, evaluated and documented different promising ornamental coleus cultivars and it is being maintained in the Institutional Farm. The Technical Bulletin, "Germplasm Resources of Ornamental Coleus in Goa" is an important document of ornamental coleus genetic resources in Goa and throws light on the tremendous diversity in leaf colour and pattern existing in different Ornamental Coleus cultivars and suitability of the same for various landscape applications. I compliment and congratulate the authors for their sincere efforts in compiling this technical bulletin. I am sure, the information compiled in this bulletin would be useful for researchers, students, farmers, garden enthusiasts, landscape entrepreneurs, folks involved in nursery industry and other stake holders involved in the floriculture sector.

(Narendra Pratap Singh)

Director

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PREFACE

Ornamental Coleus is a commercially important foliage ornamental crop belonging to the Genus *Solenostemon* and botanical family Lamiaceae. Coleus being a versatile plant thrives in hot and humid conditions and can be used for accenting a range of landscapes. It can be best grown as a container plant, indoor potted plant, topiary and a specimen in various landscape projects. However consumers are not aware of the selection and landscape performance of different varieties of ornamental coleus. Within the broad grouping of diverse ornamental coleus cultivars, each cultivar may be assigned a particular landscape use or purpose. Hence, collection, conservation and evaluation of different ornamental coleus were initiated at our institute (ICAR – Central Coastal Agricultural Research Institute, Ela, Old Goa). The objective of the study was to evaluate different ornamental coleus cultivars based on various landscape performance criteria and to identify ornamental coleus cultivars that could be used for various purposes in landscaping like Beds, Borders, Edging, Hedges, Planters, Mass planting, Hanging baskets, Vertical gardens, Container plantings and General Garden Use. During the course of the investigation, the different ornamental coleus cultivars were evaluated for various morphological and leaf quality traits and the data is documented in the form of a Technical Bulletin “Germplasm Resources of Ornamental Coleus in Goa”. At present, twenty four types / varieties have been collected, evaluated and maintained in the Institute farm. Different coleus cultivars studied exhibited an incredible array of diversity for various traits studied. The information compiled in this would be useful to researchers, students, farmers, garden enthusiasts, landscape entrepreneurs, folks involved in nursery industry and other stake holders involved in the floriculture sector. While bringing out this bulletin, we sincerely thank and acknowledge ICAR, New Delhi for extending the facility required to carry out this study. We take this opportunity to express our sincere thanks and gratitude to Dr. N. P. Singh, Director, ICAR - Central Coastal Agricultural Research Institute, Ela, Old Goa for his constant motivation, support and encouragement.

Safeena S.A
M. Thangam
N. P. Singh

INTRODUCTION

People have a great desire for colour in the shady locations of their landscapes just as much as they do in sunny areas. Unfortunately, the ornamental plants which are shade-tolerant generally are not so richly or vibrantly coloured. Hence selection of vibrant and multi-coloured bedding plants for shady gardens is limited. Inconspicuous flower bearing ornamental plants like Ornamental coleus are colourful alternative for your home or shady landscape. They come in an extensive range of colours. They will provide an instantaneous blush and colour in the landscape. They have flecked and colourful foliage and can be showcased as a single specimen or grouped for a remarkable impact. These inconspicuous flower bearing ornamental plants can be used for various purposes in landscaping. These brightly coloured-foliage plants will thrive bright in pots and containers placed in shady locations around the landscape.

Coleus is the common name for *Solenostemon scutellarioides* syn. *Plectranthus scutellarioides*, a group of attractive ornamental foliage plants with large vibrant and multicoloured leaves. They are native to tropical Asia, Africa and Australia. They belong to Kingdom Plantae, Division Magnoliophyta, Class Magnoliopsida, Order Lamiales, Family Lamiaceae (Labiatae) and Genus *Solenostemon*. Coleus is grown primarily for the impact of its splendid foliage which provides colour throughout the year. The ornamental coleus varieties range in colour from light green to deep purple and all variations in between. One reason for the attractiveness of Ornamental coleus is their colourful foliage which is usually a greatly variegated mixture of green, cream, yellow, red, purple, burgundy, and / or pink. They provide a bold texture and a thick mass in the landscape because of its striking leaves, which have a sharp contrast in colour. Leaves also vary in size and shape from less than an inch to more than 4 inches. Coleus produces inconspicuous flower spikes in shades of purple and blue. Flower buds in ornamental coleus should be pinched on a regular basis since unchecked blossoming will cause the plant to go into decline. Ornamental Coleus, being a versatile plant thrives in hot and humid conditions and can be used for accenting a range of landscapes. It can be best grown as a container plant, indoor potted plant, topiary and as a specimen in various landscape projects. Coleus prefers a well drained fertile soil mix preferably with lot of sand. They need to be irrigated regularly during summer months; otherwise they have no special needs. They are considered as low maintenance plants. The ideal temperature requirement for coleus is 18-25°C. Coleus prefers evenly moist soil and is moderately resistant to pests and diseases.

Evaluation of different Ornamental Coleus cultivars

People are not aware of the varietal choice and landscape performance of different varieties of ornamental coleus. Hence collection, conservation and evaluation of different ornamental coleus were initiated at our institute (ICAR – Central Coastal Agricultural Research Institute, Ela, Old Goa). The objective of the study was to evaluate different ornamental coleus cultivars based on various landscape performance criteria and to identify ornamental coleus cultivars that could be used for various purposes in landscaping like Beds , Borders, Edging, Hedges , Planters, Mass planting, Hanging baskets, Vertical gardens, Container plantings and General Garden Use.

At present, twenty four types / varieties viz., Gold giant, Pistachio nightmare, Miss Monahan, Antique, Mahogany Giant, Juicy Lucy, Grape expectations, Private Dancer, Eruption, Trailing Queen, Apple mint, Kong Scarlet, Dare Devil, Gay Delight, Blusher, Kong Jr, Tilt a whirl, Wizard Mosaic, Electric lime, Blackberry Waffle, Green Halo, Freckles, Finger Paint and Indian Summer Coleus have been collected, evaluated and maintained. All the collected ornamental coleus varieties were assessed for their suitability for landscape use. Significant variation was noticed among different coleus cultivars used in the study for various morphological and leaf quality parameters. Plant Height , No. of Leaves, No. of Branches, Stem girth, Length of leaf with petiole, Petiole length, leaf width, Length of leaf without petiole varied from 42.00 cm (Juicy Lucy) - 89.67 cm (Eruption), 24.89 (Gay Delight) - 72.00 (Trailing Queen), 3.00 (Mahogany Giant) - 8.67 (Eruption), 0.563 cm (Blusher) - 0.817 cm (Eruption), 11.03 cm (Tilt a Whirl) - 18.83 cm (Grape expectations), 2.07 cm (Pistachio Nightmare) - 6.00 cm (Eruption), 5.50 cm(Trailing Queen)-10.83 cm (Grape expectations), 8.33 cm (Tilt a Whirl) - 14.78 cm (Grape expectations) respectively

Characteristics	Range
Plant Height (cm)	42.00 (Juicy Lucy) - 89.67 cm (Eruption)
Number of leaves	24.89 (Gay Delight) - 72.00 (Trailing Queen)
Number of branches	3.00 (Mahogany Giant) - 8.67 (Eruption)
Stem girth (cm)	0.563 cm(Blusher) - 0.817 (Eruption)
Length of leaf with petiole (cm)	11.03 (Tilt a Whirl) - 18.83 (Grape expectations)
Petiole length (cm)	2.07 cm (Pistachio Nightmare) - 6.00 (Eruption)
Diameter of leaf stalk (cm)	0.183 cm (Kong Jr) - 0.42 (Gay delight)
Leaf width (cm)	5.50cm (Trailing Queen) - 10.83 (Grape expectations)
Length of leaf without petiole (cm)	8.33 (Tilt a Whirl) - 14.78 (Grape expectations)

Plant growth characteristics of different Ornamental Coleus cultivars under agroclimatic conditions of Goa.

Sr. no.	Treatments	Plant Height (1MAP)	Plant Height (3 MAP)	Plant Height (6 MAP)	No. of Leaves (1MAP)	No. of Leaves (3 MAP)	No. of Leaves (6 MAP)	No. of Branches (3 MAP)	No. of Branches (6 MAP)
1	Gold giant	11.227	49.111	82.333	4.960	31.000	47.000	4.667	5.333
2	Pistachio Nightmare	20.600	42.556	47.333	9.073	40.778	41.333	5.333	7.333
3	Miss Manohan	17.933	44.111	46.000	9.947	41.667	42.222	5.000	5.220
4	Antique	14.853	51.889	69.333	9.020	37.778	38.333	4.667	5.667
5	Mahogany Giant	16.733	40.222	66.333	7.103	17.778	27.333	2.333	3.000
6	Juicy Lucy	12.933	33.889	42.000	7.980	22.000	25.667	3.670	3.889
7	Grape Expectations	22.133	58.222	77.667	8.720	28.000	38.000	3.667	5.000
8	Private Dancer	18.933	45.444	62.000	7.573	26.667	32.444	3.333	4.333
9	Eruption	15.900	58.333	89.667	9.200	34.444	58.667	5.000	8.667
10	Trailing Queen	16.780	38.556	63.333	15.733	44.222	72.000	4.778	8.000
11	Apple Mint	12.713	40.111	61.000	10.467	29.333	35.889	4.667	5.333
12	Kong Scarlet	17.833	46.444	66.000	10.47	31.333	34.333	4.670	6.00
13	Daredevil	14.033	46.111	79.333	7.600	23.444	44.333	3.778	4.000
14	Gay Delight	10.933	36.444	51.333	4.600	17.667	19.444	2.889	3.667
15	Blusher	14.000	45.111	54.333	8.800	34.000	36.333	3.667	4.333
16	Kong Jr	11.220	47.444	64.000	6.100	30.667	35.333	3.889	5.000
17	Tilt a Whirl	10.773	34.111	54.667	9.667	25.444	29.333	3.333	3.556
18	Wizard Mosaic	20.867	42.778	48.000	9.407	38.000	40.333	5.289	7.667
19	Electric lime	10.967	36.556	54.667	4.700	17.000	18.667	2.800	3.667
20	Black berry waffles	22.467	58.333	79.333	8.787	28.556	37.333	3.736	5.667
21	Green Halo	12.567	34.111	47.667	8.073	24.000	25.000	3.667	3.944
22	Finger paint	14.187	54.111	70.333	8.353	33.000	38.444	4.333	5.333
23	Indian Summer	13.833	46.778	74.333	7.367	21.667	45.667	3.944	4.500
24	Freckles	14.001	44.111	60.333	7.513	29.000	33.444	3.333	4.333
	SEm+ _	0.548	2.431	4.785	0.474	3.499	3.715	0.497	0.627
	C.D at 5%	1.646	7.295	14.355	1.422	10.498	11.147	1.493	1.883

Stem girth and Leaf length of different Ornamental Coleus cultivars at different months after planting

	Treatments	Diameter of Stem (cm) (1 MAP)	Diameter of Stem (cm) (3 MAP)	Diameter of Stem (cm) (6MAP)	Leaf Length with stalk (1 MAP)	Leaf Length with stalk (3 MAP)	Leaf Length with stalk (6 MAP)	Leaf Length without stalk(cm) 1 MAP	Leaf Length without stalk(cm) 3 MAP	Leaf Length without stalk(cm) 6 MAP
1	Gold giant	0.423	0.580	0.814	4.560	16.033	17.722	12.000	13.167	13.389
2	Pistachio Nightmare	0.426	0.499	0.610	5.800	10.733	11.389	8.667	9.344	11.400
3	Miss Manohan	0.447	0.484	0.526	6.080	11.333	12.678	8.667	9.533	10.122
4	Antique	0.391	0.727	0.757	6.287	15.667	17.300	9.850	13.000	13.244
5	Mahogany Giant	0.470	0.539	0.743	7.087	16.056	16.233	11.583	12.656	13.467
6	Juicy Lucy	0.493	0.537	0.643	5.860	11.456	13.167	9.744	10.700	13.617
7	Grape Expectations	0.422	0.550	0.656	8.207	16.500	18.833	12.567	13.000	14.778
8	Private Dancer	0.404	0.507	0.593	7.373	16.611	17.333	11.450	12.444	13.000
9	Eruption	0.436	0.670	0.817	7.900	12.500	17.667	8.944	9.583	11.667
10	Trailing Queen	0.568	0.578	0.660	6.373	11.344	12.167	7.800	9.167	14.500
11	Apple Mint	0.505	0.543	0.613	4.667	15.667	15.856	13.056	13.167	14.000
12	Kong Scarlet	0.438	0.627	0.673	7.740	14.333	17.889	11.667	12.333	14.156
13	Daredevil	0.492	0.576	0.763	5.427	15.833	15.889	8.417	10.867	12.278
14	Gay Delight	0.413	0.484	0.660	4.333	12.111	14.833	9.283	10.389	12.367
15	Blusher	0.484	0.551	0.563	5.167	13.833	16.167	7.417	11.333	12.722
16	Kong Jr	0.520	0.543	0.620	4.513	15.067	15.833	12.267	13.056	13.500
17	Tilt a Whirl	0.491	0.561	0.567	4.867	10.033	10.556	7.611	7.667	12.750
18	Wizard Mosaic	0.470	0.482	0.643	8.800	9.356	14.567	5.770	10.533	11.167
19	Electric lime	0.410	0.414	0.672	4.367	12.389	15.000	10.444	12.500	12.667
20	Black berry waffles	0.407	0.583	0.671	8.380	17.000	19.056	10.417	13.200	15.000
21	Green Halo	0.412	0.500	0.633	5.807	11.511	12.833	9.800	10.867	10.917
22	Finger paint	0.397	0.750	0.762	6.313	15.333	17.778	12.578	12.667	13.083
23	Indian summer	0.435	0.579	0.793	5.560	15.389	16.167	11.167	12.444	12.250
24	Freckles	0.311	0.550	0.623	4.313	10.333	12.78	8.578	9.667	10.083
	SEm+ ₋	0.028	0.026	0.039	0.222	0.696	1.031	0.452	0.925	0.745
	C.D at 5%	0.086	0.078	0.118	0.667	2.090	3.095	1.357	2.777	2.236

Petiole length, leaf width and leaf stalk girth of different Ornamental Coleus cultivars at different months after planting

Sr. No.	Treatments	Leaf stalk length (1 MAP)	Leaf stalk length (3 MAP)	Leaf stalk length (6 MAP)	Leaf Width (1 MAP)	Leaf Width (3 MAP)	Leaf Width (6 MAP)	Leaf stalk diameter (6 MAP)
1	Gold giant	0.510	4.033	4.333	2.730	9.389	9.700	0.277
2	Pistachio Nightmare	1.070	2.044	2.067	3.180	7.556	8.250	0.200
3	Miss Manohan	1.480	2.556	2.667	3.890	6.750	7.889	0.267
4	Antique	1.320	2.667	4.056	4.080	7.100	8.533	0.220
5	Mahogany Giant	1.440	2.767	3.400	3.570	7.750	8.278	0.203
6	Juicy Lucy	1.550	1.711	2.467	3.120	6.100	8.000	0.213
7	Grape Expectations	1.990	3.500	4.056	3.430	9.000	10.333	0.307
8	Private Dancer	1.450	4.167	4.333	2.980	9.000	10.300	0.300
9	Eruption	1.220	3.556	6.000	3.030	5.200	8.500	0.247
10	Trailing Queen	1.870	3.000	3.544	4.140	5.256	10.500	0.200
11	Apple Mint	1.770	2.500	2.800	3.760	7.211	9.750	0.260
12	Kong Scarlet	2.020	2.667	3.733	3.540	8.500	9.500	0.217
13	Daredevil	2.250	3.611	4.967	3.650	7.250	8.022	0.207
14	Gay Delight	1.722	2.030	2.467	3.390	5.750	6.800	0.660
15	Blusher	1.200	2.500	3.444	3.170	6.000	9.856	0.280
16	Kong Jr	1.130	2.778	2.800	2.100	7.789	8.750	0.190
17	Tilt a Whirl	1.260	2.367	2.944	2.780	7.500	7.956	0.243
18	Wizard Mosaic	1.670	1.767	1.87	3.610	7.000	7.500	0.240
19	Electric lime	1.210	1.978	2.633	3.250	6.350	7.000	0.257
20	Black berry waffles	0.820	3.733	4.389	2.870	8.250	10.556	0.307
21	Green Halo	0.530	1.733	1.967	2.770	6.267	7.500	0.247
22	Finger paint	0.650	2.333	5.256	3.440	8.533	9.000	0.207
23	Indian summer	1.120	3.167	5.333	3.360	5.500	9.000	0.193
24	Freckles	1.780	2.400	2.810	3.290	5.150	6.100	0.216
	SEm+ _	0.325	0.367	0.476	0.308	0.646	0.752	0.032
	C.D at 5%	0.977	1.102	1.429	0.926	1.939	2.257	0.097

Description of selected coleus cultivars

Gold giant

General information:

It is a tall and sturdy coleus cultivar with broad, golden-green leaves with reddish-purple undersides. Stems and petioles are purple in colour and it makes for a great background plant in a pot or garden bed. Full sun to partial shade is preferred. It is a medium tall variety and is well suited for hedging purpose in shady areas.

Salient features	
Plant Height	82.333 cm
Number of leaves	47.000
Number of branches	5.333
Stem girth	0.814 cm
Length of leaf with petiole	17.722 cm
Petiole length	4.367 cm
Diameter of leaf stalk	0.277 cm
Leaf width	9.633 cm
Length of leaf without petiole	13.389 cm



Miss Monahan

General Information:

It is a sturdy coleus cultivar and has green leaves with magenta spot in the centres and purple undersides. Stems and petioles are purple in colour. Full sun to partial shade is preferred. It has a compact dense nature and hence suited for hanging basket.

Salient features	
Plant Height	46.000 cm
Number of leaves	45.000
Number of branches	5.667
Stem girth	0.639 cm
Length of leaf with petiole	12.678 cm
Petiole length	2.667 cm
Diameter of leaf stalk	0.267 cm
Leaf width	7.889 cm
Length of leaf without petiole	10.122 cm



Antique

General Information:

Variability in colouration makes them virtually indistinguishable. Their scalloped leaves are chartreuse with deep maroon or purple flecking, which varies with the amount of sun exposure. Leaves are light purple underneath. Stem and petioles are also light purple in colour. Plants form mounds up to 3 feet tall. Antique could be used for border planting since they are tall varieties.

Salient features	
Plant Height	69.333 cm
Number of leaves	38.333
Number of branches	6.333
Stem girth	0.760 cm
Length of leaf with petiole	17.300 cm
Petiole length	4.056 cm
Diameter of leaf stalk	0.220 cm
Leaf width	8.667 cm
Length of leaf without petiole	13.244 cm



Pistachio Nightmare

General Information:

It has conspicuous bright green serrated leaves highlighted with a cream centre and speckled with radiant neon pink, yellow and brown with greenish undersides. Fresh new leaves have brighter colours. Stems and petioles are greenish white in colour. It prefers full sun to partial shade. Pistachio Nightmare could be planted in vertical gardens as they give bold texture because of its sharp contrast. It displays attractive leaf characteristics like fancy leaves and peculiar colouration. It also looks great in the ground or a container.

Salient features	
Plant Height	47.333 cm
Number of leaves	41.333
Number of branches	7.333
Stem girth	0.610 cm
Length of leaf with petiole	11.389 cm
Petiole length	2.067 cm
Diameter of leaf stalk	0.233 cm
Leaf width	7.556 cm
Length of leaf without petiole	9.344 cm



Private Dancer

General Information:

It has bright chartreuse or yellowish green leaves, heavily marked and finely sectored dark mahogany red to dark maroon red with purple leaf vein. Some leaf blades exhibit variable chimera depths, giving many intermediate colours, part pink and part green, and it is radically interrupted by lime or violet red to maroon red sectored and stripes. Leaves are purple underneath and stem is light purplish in colour. It could be used for close planting in garden beds.

Salient features	
Plant Height	62.000 cm
Number of leaves	32.444
Number of branches	5.333
Stem girth	0.593 cm
Length of leaf with petiole	17.333 cm
Petiole length	4.333 cm
Diameter of leaf stalk	0.300 cm
Leaf width	9.667 cm
Length of leaf without petiole	13.333 cm



Juicy Lucy

General Information:

Wide, soft leaves of coppery-red or maroon centre are surrounded at the edge with a lacy greenish yellow pattern. Leaves are purple underneath. Stems and petioles are light purplish in colour. Partial sun or high shade is good for best colour. It can be planted in garden beds, pots and baskets and can be planted more densely. It is also suited for hanging basket because of its compact dense nature.

Salient features	
Plant Height	42.000 cm
Number of leaves	25.667
Number of branches	4.333
Stem girth	0.677 cm
Length of leaf with petiole	13.167 cm
Petiole length	2.467 cm
Diameter of leaf stalk	0.213 cm
Leaf width	8.833 cm
Length of leaf without petiole	10.700 cm



Eruption

General Information:

It is a medium tall variety and is suited as hedges in shady areas. They possessed appealing colouration. It has attractive small serrated pointy or toothed green coloured leaves with showy variegation of brown striations and tinges of lemon yellow with purple underneath. Stem is purple in colour. It has an upright spreading habit of growth. Its medium texture blends into the garden, but can always be balanced by a couple of finer or coarser plants for an effective composition. It does best in partial shade to full shade.

Salient features	
Plant Height	89.667 cm
Number of leaves	58.667
Number of branches	8.667
Stem girth	0.817 cm
Length of leaf with petiole	17.667 cm
Petiole length	6.000 cm
Diameter of leaf stalk	0.247 cm
Leaf width	7.167 cm
Length of leaf without petiole	11.667 cm



Trailing Queen

General Information:

It has deep red-pink or magenta centre with a lacy green frilly border and a shock of hot pink in the centre of the textured leaf. Leaves curl upwards and have toothed margins. Stems and underside of the leaves are purple in colour. This is a vigorous type and is sun tolerant. It can be planted in garden beds, pots, baskets etc and can be planted more densely.

Salient features	
Plant Height	63.333 cm
Number of leaves	44.222
Number of branches	8.000
Stem girth	0.660 cm
Length of leaf with petiole	12.167 cm
Petiole length	3.544 cm
Diameter of leaf stalk	0.200 cm
Leaf width	5.500 cm
Length of leaf without petiole	9.167 cm



Grape Expectations

General Information:

It could be used for border planting because of its tall upright and mounding growth habit. It has Concord grape purple or velvettish vine colour with a flash of violet-pink or magenta in the centre which extends up to the margin. Leaves are purple underneath and stems and petioles are greenish purple in colour. This lovely coleus has neat and unique scalloped edges and a very refined habit. It can be planted in partial sun or high shade for best colour. It is an excellent choice for borders, mixed containers, garden beds, pots, baskets, etc. This “Grape Coloured Coleus” provides the most amazing true vibrant solid colour to any design or planting.

Salient features	
Plant Height	77.667 cm
Number of leaves	38.000
Number of branches	5.000
Stem girth	0.656 cm
Length of leaf with petiole	18.833 cm
Petiole length	4.056 cm
Diameter of leaf stalk	0.340 cm
Leaf width	10.833 cm
Length of leaf without petiole	14.778 cm



Mahogany Giant

General Information:

This is a tall type and could be used for border planting. It has deep purple-black coloured foliage with purple underneath. Stem and petioles are purple in colour. It grows 12-15 inches tall. It prefers full Sun to Partial Shade. It could be used for border planting since it is a tall variety.

Salient features	
Plant Height	66.333 cm
Number of leaves	27.333
Number of branches	3.000
Stem girth	0.743 cm
Length of leaf with petiole	16.056 cm
Petiole length	3.400 cm
Diameter of leaf stalk	0.237 cm
Leaf width	9.700 cm
Length of leaf without petiole	13.467 cm



Apple Mint

General Information:

It has green coloured leaves with brown spotted centre. Leaves are green underneath and stem and petioles are greenish in colour. Apple mint could be used in planters because of its gorgeous and elegant look. They had a uniform growth pattern and consistent colouration.

Salient features	
Plant Height	61.000 cm
Number of leaves	35.889
Number of branches	5.333
Stem girth	0.613 cm
Length of leaf with petiole	17.333 cm
Petiole length	2.800 cm
Diameter of leaf stalk	0.260 cm
Leaf width	8.167 cm
Length of leaf without petiole	13.833 cm



Gay Delight

General Information:

It has oval shaped chartreuse / lime green coloured leaves with nearly black dark purple or dark maroon venation with light green colour underneath. Stems and petioles are dark purple in colour. It is Sun tolerant coleus. Gay Delight could be used for container planting or in planters because of its dazzling and graceful look. They had a uniform growth pattern and consistent colouration. It has a unique colour that gets immediate notice in any garden. The brilliant colours explode in sunny locations.

Salient features	
Plant Height	51.333 cm
Number of leaves	24.889
Number of branches	3.667
Stem girth	0.660 cm
Length of leaf with petiole	14.833 cm
Petiole length	2.467 cm
Diameter of leaf stalk	0.423 cm
Leaf width	7.500 cm
Length of leaf without petiole	12.367 cm



Kong Scarlet

General Information:

Kong Scarlet Coleus has attractive small serrated pointed leaves which are scarlet brown in colour with distinctive lemon yellow edges throughout the year. Leaves are light green underneath. Stem and petioles are yellowish green in colour. The flowers are not ornamentally significant. Kong Scarlet is a tall type and could be used for border planting.

Salient features	
Plant Height	66.000 cm
Number of leaves	35.333
Number of branches	4.667
Stem girth	0.673 cm
Length of leaf with petiole	17.889 cm
Petiole length	3.733 cm
Diameter of leaf stalk	0.217 cm
Leaf width	8.500 cm
Length of leaf without petiole	14.156 cm



Tilt a Whirl

General Information:

It has distinctive rolled up or swirling circular leaves of gentle heather to mahogany brown colour with zig zag frilly edges tipped in lime or yellow colour and feathered centers and green veins. Leaves are light green underside and stems and petioles are greenish in colour. It is of dwarf, compact and dense nature and hence can be used for container planting and for interior decoration purpose. Tilt a whirl is a marvellous cultivar because of its distinctive leaf shape and compact nature.

Salient features	
Plant Height	54.667 cm
Number of leaves	29.333
Number of branches	4.333
Stem girth	0.600 cm
Length of leaf with petiole	11.033 cm
Petiole length	2.944 cm
Diameter of leaf stalk	0.243 cm
Leaf width	10.000 cm
Length of leaf without petiole	8.333 cm



Daredevil

General Information:

It is a medium tall type and is well appropriate as hedges in shady areas. They possessed appealing colouration and peculiar leaf pattern. Leaves curl upwards and have twisted and toothed margins. It has brownish centre with greenish yellow leaf margin. The undersides of the leaves are light green in colour and stems are greenish purple.

Salient features	
Plant Height	79.333 cm
Number of leaves	39.333
Number of branches	4.000
Stem girth	0.763 cm
Length of leaf with petiole	16.833 cm
Petiole length	4.967 cm
Diameter of leaf stalk	0.207 cm
Leaf width	8.022 cm
Length of leaf without petiole	12.278 cm



Kong Junior

General Information:

It is a herbaceous evergreen annual bedding plant with an upright spreading habit of growth. It has dark brownish centre with greenish leaf margin. The undersides of the leaves are light green in colour and stems and petioles are light greenish in colour. They possess dazzling colouration in the foliage. It has relatively coarse texture. It can be used in garden beds, Container Planting, General Garden Use, Border Edging, Mass Planting, Hanging Baskets etc. This annual bedding plant does best in partial shade to shade.

Salient features	
Plant Height	64.000 cm
Number of leaves	35.333
Number of branches	5.000
Stem girth	0.620 cm
Length of leaf with petiole	17.733 cm
Petiole length	2.800 cm
Diameter of leaf stalk	0.183 cm
Leaf width	8.000 cm
Length of leaf without petiole	13.056 cm



Blusher

General Information:

It has concord grape purple coloured leaves of rich texture with a flash of violet-pink or magenta in the vein which is restricted towards the centre. Leaves are purple underneath and stems and petioles are purplish in colour. It is a dwarf and compact type and can be used for container planting and for interior decoration purpose

Salient features	
Plant Height	54.333 cm
Number of leaves	36.333
Number of branches	4.333
Stem girth	0.563 cm
Length of leaf with petiole	16.167 cm
Petiole length	3.444 cm
Diameter of leaf stalk	0.280 cm
Leaf width	9.833 cm
Length of leaf without petiole	12.722 cm



Green Halo

General Information:

These are big powerful plants with bold greenish yellow large leaves blazed with a creamy white flash in the centre. Stem and petioles are greenish white in colour and leaves are light greenish white underneath. It grows to height of 46 - 61cm. It has unique colour and patterns and suited for container planting. It performs well in landscapes, patio planters and mixed containers.

Salient features	
Plant Height	47.667 cm
Number of leaves	25.000
Number of branches	3.944
Stem girth	0.633 cm
Length of leaf with petiole	12.833 cm
Petiole length	1.967 cm
Diameter of leaf stalk	0.247 cm
Leaf width	7.500 cm
Length of leaf without petiole	10.917 cm



Electric lime

General Information:

It has lime green coloured toothed leaves with contrasting and prominent bright yellowish white spots and streaks all over and has distinct white leaf veins. Leaves are greenish with white spots underneath and stems and petioles are greenish white in colour. It could be used in planters because of its gorgeous and elegant look. They had a uniform growth pattern and consistent colouration. It can also be planted in garden beds, pots and baskets and can be planted more densely. It has stunning colour and unique leaf patterns and is suited for full sun and shade. Its bright lemon-lime leaves electrify the shady areas of landscape.

Salient features	
Plant Height	54.667 cm
Number of leaves	18.667
Number of branches	3.667
Stem girth	0.672 cm
Length of leaf with petiole	15.000 cm
Petiole length	2.633 cm
Diameter of leaf stalk	0.257 cm
Leaf width	7.000 cm
Length of leaf without petiole	12.667 cm



Freckles

General Information:

It has bright yellowish green leaves, speckled with maroon all over. This attractive plant tends to offer light greenish leaves in low light, but still maintains a distinctive beauty. It performs extremely well in direct sun. It could be planted in vertical gardens as they give thick and bold texture because of its sharp contrast.

Salient features	
Plant Height	70.333 cm
Number of leaves	38.444
Number of branches	5.333
Stem girth	0.762 cm
Length of leaf with petiole	17.778 cm
Petiole length	5.256 cm
Diameter of leaf stalk	0.207 cm
Leaf width	9.000 cm
Length of leaf without petiole	13.083 cm



Wizard Mosaic

General Information:

It has bright chartreuse, heavily marked and finely sectored dark mahogany red to maroon red with a brilliant mix of the two shades and has a distinct purple vein. The underside of the leaves is green in colour and stem is light green in colour. Wizard mosaic could be planted in vertical gardens and they give bold texture because of its sharp contrast. They displayed attractive leaf characteristics like fancy leaves and bizarre colouration.

Salient features	
Plant Height	48.000 cm
Number of leaves	40.333
Number of branches	7.667
Stem girth	0.643 cm
Length of leaf with petiole	14.567 cm
Petiole length	1.87 cm
Diameter of leaf stalk	0.240 cm
Leaf width	7.500 cm
Length of leaf without petiole	11.167 cm



Black berry waffles

General Information:

It has deep purple-black or velvettish vine coloured and highly serrated or toothed foliage with grape vine colour underneath. Stem and petioles are dark purple in colour. It is a dazzling plant with deep purple colour and has a unique texture. It has a sturdy growth habit. It tolerates partial sun or high shade. It can be planted in garden beds, pots and baskets. It is excellent for the landscape and for mixed containers.

Salient features	
Plant Height	79.333 cm
Number of leaves	37.333
Number of branches	5.667
Stem girth	0.671 cm
Length of leaf with petiole	19.056 cm
Petiole length	4.389 cm
Diameter of leaf stalk	0.307 cm
Leaf width	10.556 cm
Length of leaf without petiole	15.000 cm



Indian Summer Coleus

General Information:

It has gorgeous toothed and pointed leaves with distinctive dark pinkish red vein and tinges of green and pink. It has an upright spreading habit of growth with striking colours and patterns. Indian Summer Coleus is recommended for different landscape applications like Hanging Baskets, General Garden Use, Container Planting, Edging purpose, Mass Planting, etc. It does best in partial shade to full shade.

Salient features	
Plant Height	74.333 cm
Number of leaves	45.667
Number of branches	4.500
Stem girth	0.793 cm
Length of leaf with petiole	16.167 cm
Petiole length	5.333 cm
Diameter of leaf stalk	0.193 cm
Leaf width	9.000 cm
Length of leaf without petiole	12.250 cm



Finger paint

General Information:

These are Sun-loving coleus known for their vibrant and attractive foliage. It has burgundy and lime-yellow bicoloured foliage. Irregular burgundy splashes on lime green to yellow leaves make this a colourful addition to summer gardens, pots, mixed containers or landscape beds. The height of the plant varies between 8-20" in height, which makes them ideal for pots on the courtyard or in the house, in border fringes or raised garden beds. They tolerate partial shade to full sun light.

Salient features	
Plant Height	70.333 cm
Number of leaves	38.444
Number of branches	5.333
Stem girth	0.762 cm
Length of leaf with petiole	17.778 cm
Petiole length	5.256 cm
Diameter of leaf stalk	0.207 cm
Leaf width	9.000 cm
Length of leaf without petiole	13.083 cm



Consumers are not aware of the selection and landscape performance of different varieties of ornamental coleus. Within the broad grouping of diverse ornamental coleus cultivars, each cultivar may be assigned a particular landscape use or purpose. Based on the present study, we have identified ornamental coleus cultivars that could be used for various purposes in landscaping.

Different coleus cultivars exhibited an incredible range of diversity for various traits studied and can be recommended for the following landscape applications;

- **Landscape**
- **Beds**
- **Borders**
- **Edging**
- **Hedges**
- **Planters**
- **Mass planting**
- **Hanging baskets**
- **Vertical gardens**
- **Container plantings**
- **General Garden Use etc.**



Splendid foliage of different ornamental coleus cultivars

Identification of Coleus cultivars for various purposes in landscaping

Accordingly we are recommending coleus cultivars like Trailing Queen, Kong Jr, Blackberry Waffles and Private Dancer for using in beds. They possessed dazzling colouration in the foliage. Grape Expectations, Kong Scarlet, Mahogany Giant and Antique could be used for border planting since they are tall varieties. Medium tall Varieties like Eruption, Gold giant and Dare devil are well appropriate as hedges in shady areas. They possessed appealing colouration. Apple mint, Gay Delight and Electric lime could be used in planters because of its gorgeous and elegant look. They had a uniform growth pattern and consistent colouration. Varieties suited for hanging basket include Juicy Lucy, Indian summer coleus and Miss Manohan because of its compact dense nature. Pistachio Nightmare, Freckles, Finger Paint and Wizard mosaic could be planted in vertical gardens and they give bold texture because of its sharp contrast. They displayed attractive leaf characteristics like fancy leaves and bizarre colouration. Dwarf and compact types like Blusher, Green Halo and Tilt a whirl can be used for container planting and for interior decoration purpose. Tilt a whirl was an admirable cultivar because of its distinctive leaf shape and compact nature. There was little or no disease and pest incidence on different coleus cultivars evaluated. This is firsthand information which will allow folks involved in nursery industry to give appropriate planting recommendations for their clients or customers.



Coleus cultivars recommended to function for various purposes in landscaping

The results of the study reflect the aptness of different ornamental coleus cultivars for their landscape performance. Coleus is thus a splendid foliage beauty with inconspicuous bloom. By coordinating or contrasting the colour, leaf size and shape with the surrounding plantings, the ornamental coleus can make a magnificent landscape.

Effect of different media on rooting of cuttings of different ornamental coleus varieties

To optimize the technology for propagation of coleus, present experiment was designed with objective to determine efficient medium for propagation and nursery production of different ornamental coleus varieties. Experiment was laid out in factorial Completely Randomized Design with four replications and two factors.

Factor A : 17 coleus varieties

- | | |
|------------------------|--------------------|
| 1. Gold giant | 10. Trailing Queen |
| 2. Pistachio Nightmare | 11. Apple Mint |
| 3. Miss Manohan | 12. Kong Scarlet |
| 4. Antique | 13. Daredevil |
| 5. Mahogany Giant | 14. Gay Delight |
| 6. Juicy Lucy | 15. Blusher |
| 7. Grape Expectations | 16. Kong Jr |
| 8. Private Dancer | 17. Tilt a Whirl |
| 9. Eruption | |

Factor B: 5 growing media

M1: Sand,

M2: Saw dust,

M3: Sand + Vermicompost (1:1),

M4: Saw dust + Vermicompost (1:1:1),

M5: Sand+ Saw dust+ Vermicompost (1:1:1).

Experimental results has shown that, high rooting percentage (75.88%) was achieved by cuttings in sand +saw dust + Vermicompost (1:1:1) while lowest (57.79%) was obtained in sawdust. Highest (10.62) and lowest (6.55) number of fully developed leaves was achieved in sand +saw dust + Vermicompost (1:1:1) and saw dust respectively which showed significant differences. Similarly, highest number of cuttings rooted, shoot length, leaf length and width, petiole length, shoot girth etc was achieved in sand+ saw dust+ Vermicompost (1:1:1). Hence in order to promote mass production of coleus varieties, sand +saw dust + Vermicompost(1:1:1) is recommended.



Propagation studies in different ornamental coleus cultivars

Varieties	No .of cuttings rooted	Survival percentage of cuttings	No.of fully developed leaves	Leaf length with stalk (cm)	Leaf length without stalk (cm)	Leaf width (cm)	Stem length (cm)	stem girth (mm)
Gold giant	20.000	40.000	4.870	4.465	3.660	2.640	11.205	4.050
Pistachio Nightmare	47.000	94.000	8.905	6.015	4.240	3.620	20.600	4.945
Miss Manohan	45.000	90.000	9.343	6.370	4.725	3.815	18.600	4.090
Antique	28.950	57.500	9.715	6.110	4.680	3.105	14.865	5.555
Mahogany Giant	40.000	75.000	6.995	6.770	4.995	3.055	15.400	4.055
Juicy Lucy	33.500	67.000	7.960	5.655	4.450	2.895	12.000	3.740
Grape Expectations	38.500	77.000	9.090	8.520	6.490	4.480	19.835	5.160
Private Dancer	36.000	72.000	8.115	7.290	5.235	3.590	18.900	4.540
Eruption	29.000	58.000	8.500	8.175	5.650	3.440	16.315	5.020
Trailing Queen	25.250	50.500	15.650	5.935	4.915	3.175	16.895	4.455
Apple Mint	43.000	86.000	11.200	4.525	3.535	1.995	12.135	4.650
Kong Scarlet	48.500	97.000	10.150	7.470	5.815	3.545	17.975	4.065
Daredevil	34.500	69.000	6.650	6.170	4.305	3.100	14.575	3.900
Gay Delight	36.500	73.000	10.200	4.470	3.535	1.955	12.135	4.605
Blusher	26.500	53.000	9.350	5.490	4.185	3.535	13.850	4.400
Kong Jr	19.500	39.000	5.220	4.435	3.530	2.595	11.330	4.380
Tilt a Whirl	26.000	52.000	9.250	4.450	3.465	2.525	9.980	4.450
Sem	1.064	2.106	0.61	0.339	0.233	0.159	0.800	0.212
C. D	3.192	6.318	1.830	1.018	0.701	0.478	2.401	0.637

Effect of different media on rooting of cuttings of different varieties of ornamental coleus

Treatments	No. of cuttings rooted	Survival percentage of cuttings	No. of fully developed leaves	Leaf length with stalk (cm)	Leaf length without stalk (cm)	Leaf width (cm)	stem length (cm)	stem girth (cm)
M ₁ : sand	36.618	73.235	8.398	5.900	4.479	3.171	13.741	4.610
M ₂ : saw dust	31.162	62.353	6.552	5.715	4.266	2.915	14.166	4.041
M ₃ : sand + Vermicompost (1:1)	34.706	68.971	8.981	6.444	4.809	3.332	17.585	4.156
M ₄ : saw dust + Vermicompost(1:1:1)	29.632	57.794	9.910	5.575	4.304	2.900	14.137	4.835
M ₅ : Sand + saw dust + Vermicompost (1:1:1)	37.794	75.882	10.619	6.459	4.909	3.290	15.840	4.728
Sem	0.577	1.142	0.330	0.184	0.126	0.086	0.434	0.115
C. D	1.731	3.427	0.992	0.552	0.380	0.259	1.302	0.345

Conclusion

In conclusion, these inconspicuous flower bearing ornamental plants could be used in shady landscapes and throughout the home to give a face-lift to the surroundings. The marvellous foliage of Ornamental coleus even challenges a brightest bloom. They improve the visual appeal of the landscape. A multitude of foliage variegation patterns in coleus allows for endless design possibilities in gardening and landscaping. A foliage plant in a living room provides a hue of colour and helps to alleviate harsh lines from fixtures and architectural design. The mere presence of ornamental foliage plants in our environment conveys a vibrant feeling of refreshment. The image and look of the vicinity whether it's residence or workplace or hospital is enhanced by the growing of ornamental plants. Aside from pleasant aesthetics, ornamental plants make use of the vacant spots in an efficient way and fill our environment with fresh oxygen. Thus growing plants in the indoor as well as in the surroundings, helps in making our lives better by creating a lively and refreshing ambience.



Gold giant



Miss Monahan



Antique



Pistachio Nightmare



Private Dancer



Eruption



Juicy Lucy



Trailing Queen



Grape Expectations



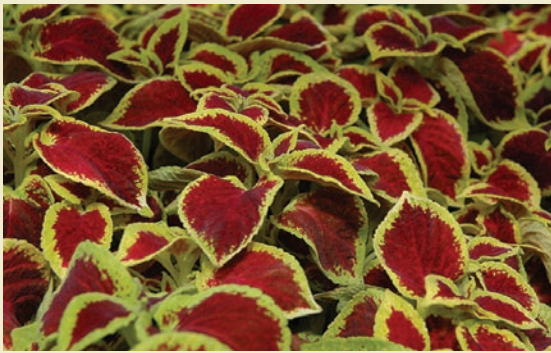
Mahogany Giant



Apple Mint



Gay Delight



Kong Scarlet



Daredevil



Tilt a Whirl



Kong Junior



Blusher



Electric lime



Green Halo



Freckles



Wizard Mosaic



Indian Summer Coleus



Black berry waffles



Finger paint

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<http://www.rosydawngardens.com>

Photograph sources

Institute farm and laboratory

Farmers field



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