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Studies on periodic vegetative growth in different genotypes of colocasia

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Abstract

The field trial was carried out at the Central Experiment Station, Wakawali, Dapoli during *kharif* season of the year, 2016 to assess the periodic vegetative growth in different genotypes of colocasia. In all sixteen genotypes were evaluated for their growth performance. All the genotypes showed wide range of variation at every fifteen days of interval after planting. Among the sixteen colocasia genotypes evaluated, maximum plant height was recorded in AC-20 (60.34 cm) and minimum plant height was recorded in BCC-11 (45.82 cm). The maximum leaf thickness (0.538 mm) was recorded in genotype Mahim. Whereas, minimum leaf thickness (0.473 mm) was recorded in Kelva genotype. Significantly maximum number of leaves plant⁻¹ (17.47 plant⁻¹) was recorded in genotype M-9-111 followed by Sanjivini (16.00 plant⁻¹) and SreePallavi (15.13 plant⁻¹). Whereas, less number of leaves plant⁻¹ (12.27 plant⁻¹) was recorded in Khopoli genotype. A higher value of leaf length (55.86 cm) was recorded in genotype Sree Pallavi (G₁₁) and minimum leaf length (43.03 cm) was recorded by NDB-9 genotype. The maximum leaf breadth (42.50 cm) was also recorded in Sree Pallavi genotype. However, minimum leaf length (31.52 cm) was in Kelva genotype. Petiole length (was maximum 57.55 cm) in genotype AC-20 and lowest petiole length (43.14 cm) was observed in Khed Shiravali genotype. Petiole girth (7.13 cm) was highest in Sree Pallavi and lowest petiole girth (4.84 cm) was recorded in NDB-9 genotype. The maximum leaf area (747.29 cm²) was recorded in Khed Shiravali genotype and it was at par with Sree Pallavi (739.72 cm²) M-12-429 recorded minimum leaf area (464.06 cm²).

Keywords: *Colocasia*, *growth*, plant height, leaf area, petiole

Introduction

Colocasia (*Colocasia esculenta* L. Schott) is also called as *edode* or *arvii* a tropical tuber crop belongs to the monocotyledonous family Araceae. of the order Arales whose members are known as aroids. It is the most ancient complex of domesticated plants, comprising of nearly 110 genera and more than 2000 species. It is grown throughout the tropics and subtropics for its tuber vegetable (corm, cormels and leaves) and Taro serves as staple source of diet for people around the world and it is the fourteenth most consumed vegetable worldwide (Rao *et al.* 2010) [9].

It is grown as tropical tuber crop under high rainfall conditions of the Konkan region of Maharashtra. The planting is done with the onset of monsoon and harvesting of crop as tuber is done in the month of November. It is mainly grown as leafy vegetable and as a tuber crop in some extent. The young leaves along with petiole up to 3 month stage are generally used as vegetable. The leaves which are just about to unfold are more preferred than old leaves. The leaves and petioles are said to be good source of 'Vitamin A' and 'Vitamin C'. The leaves and petioles are prepared for vegetable by peeling and cutting. The tamarind or Kokum used while cooking to reduce oxalates or pinch of baking soda is usually added to remove the acidity. It is necessary to evaluate different varieties on the basis of oxalic acid content in the leaves and tubers.

As it is consumed as leafy vegetable, the growth of vegetative part, especially the leaf development is quite important. The growth of leaf is associated with to genetic variation among the different genotypes and environmental factors. With this view, the periodic growth of different colocasia genotypes was studied.

Material and Methods

The field trial was conducted at Central Experiment Station, Wakawali, Dist. Ratnagiri, Maharashtra during the period of June to November, 2016 (*Kharif* season). The location falls under tropical humid zone with an average rainfall of 3000 mm is situated at an altitude of 242 m above MSL. The geographical situation is 17° 48' N latitude and 73° 78' E longitude. The experiment was laid out in Randomized Block Design and 16 genotypes of colocasia in 3 replications were tested for their growth performance. Each plot was measured in 1.35 × 1.8 m

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consisted of three rows with 3 plants per row. Accordingly, 9 plants spaced at 60 × 45 cm apart, were accommodated per plot. Recommended cultural practices were adopted uniformly to grow the crop. From each plot, five plants were randomly selected and marked for recording observations. The periodic growth observations (15, 30, 45, 60 and 75 days after planting) on plant height, leaf thickness, number of leaves produced per plant, length and breadth of leaf, length and girth of petiole and leaf area was recorded by adopting standard procedure. The data was statistically analyzed as per the following methods prescribed by Panse and Sukhatme (1985) [7].

Results and Discussion

Plant height (cm)

The data regarding the plant height at different growth stages (15, 30, 45, 60 and 75 days after planting) of different colocasia genotypes are presented in Table 1. All the genotypes of colocasia significantly differed for plant height in every growth stage. At 15 DAP, maximum plant height (21.35 cm) was recorded in AC-20 (G₁₄) and it was at par with M-9-111 (20.83 cm), NDB-22 (20.14 cm), Sree Pallavi (20.06 cm) and M-12-429 (19.70 cm), Kelva (19.11 cm), Khopoli (18.47 cm) and Talsure (18.12 cm). Whereas, minimum plant height (15.05 cm) was recorded in Devakibai Walang (G₅). At 30 DAP, maximum plant height was recorded (34.56 cm) in AC-20 (G₁₄) and it was at par with Sree Pallavi (33.74 cm), NDB-22 (33.52 cm), M-9-111 (33.34 cm), Talsure (31.36 cm) and Mahim (30.21 cm). Whereas, minimum plant height was recorded in M-12-429 (25.57 cm). At 45 DAP, maximum plant height was recorded (49.25 cm) in AC-20 and it was at par with NDB-22 (47.69 cm). Whereas, minimum plant height was recorded in Khopoli (35.01 cm). However, at 60 and 75 DAP, AC-20 found to be superior for plant height i.e. (55.93 cm) and (60.34 cm), respectively. While minimum plant height was recorded in BCC-11 (42.22 cm at 60DAP and 45.82 cm at 75 DAP).

The plant growth of colocasia was superior in AC-20 (G₁₄) genotype which was closely followed by Sanjivani (G₁). While Muktakeshi (Check, G₇) reported 47.70 cm plant height. Ghosh *et al.* (2004) [6], Choudhary *et al.* (2011) [5], Sibyala (2013) [10] and Bassey *et al.* (2016) [2] also reported similar variations for plant height among different colocasia genotypes in their studies at different locations. The variation in plant height may be attributed to genetic variation in different genotypes and environmental effects.

Thickness of leaves (mm)

The data on the leaf thickness in different colocasia genotypes is given in Table 1. All the genotypes differed significantly for thickness of leaves. At 15 DAP, maximum leaf thickness (0.469 mm) was recorded in genotype Mahim. Whereas, minimum leaf thickness (0.351 mm) was recorded in NDB-9 and M-12-429 genotypes, respectively. At 30 DAP, maximum leaf thickness (0.514 mm) was recorded in Mahim and it was at par with Talsure (0.494 mm). Whereas, minimum leaf thickness (0.419 mm) was recorded in Kelva genotype. However, at 45, 60 and 75 DAP, Mahim found to be superior for leaf thickness (0.523 mm, 0.531 mm and 0.538 mm, respectively). While minimum leaf thickness was recorded in Kelva (0.453 mm, 0.469 mm and 0.473 mm at 45, 60 and 75 DAP, respectively).

The variations in leaf thickness of different taro collections were also reported by Angami *et al.* (2015) [11] and Bassey *et al.* (2016) [2]. The variation in leaf thickness can be attributed

to genetic variation in different genotypes and environmental effects. The thickness of leaves increased with crop growth.

Number of leaves per plant

The data on number of leaves presented in Table 2 showed significant difference among all the genotypes of colocasia for number of leaves. At 15 DAP, maximum number of leaves (1.87 plant⁻¹) was recorded in M-9-111 and it was at par with Sanjivini (1.73 plant⁻¹) and Talsure (1.67 plant⁻¹). While minimum number of leaves (1.27 plant⁻¹) was recorded in Khopoli. At 30 DAP, maximum number of leaves per plant (3.33 plant⁻¹) was recorded in M-9-111 (G₁₀) and it was at par with Sree Pallavi (3.13 plant⁻¹) and Sanjivini (3.07 plant⁻¹). While minimum number of leaves (2.40 plant⁻¹) was recorded in Khopoli (G₁₆). At 45 DAP, maximum number of leaves per plant (3.93 plant⁻¹) was recorded in M-9-111 (G₁₀). While minimum number of leaves per plant (2.67 plant⁻¹) was recorded in Khopoli (G₁₆). However, at 60 and 75 DAP, M-9-111 was found to be superior for number of leaves per plant (4.13 and 4.20 respectively) and it was at par with Sanjivini (3.80 plant⁻¹) and (3.93 plant⁻¹) at 60 DAP and 75 DAP. Whereas, minimum number of leaves per plant was recorded in Khopoli (2.87 at 60 DAP and 3.07 at 75 DAP).

The variations in number of leaves plant⁻¹ in different colocasia genotypes were also reported by Dwivedi and Sen (2001), Chattopadhyay *et al.* (2006), Choudhary *et al.* (2011) [5], Rao *et al.* (2008), Choudhary *et al.* (2011) [5], Paul and Bari. (2011) [8], Sibyala (2013) [10] and Bassey *et al.* (2016) [2]. The variation in number of leaves plant⁻¹ might be due to the genetic variation in the different colocasia genotypes. The potential of leaves production in colocasia differed from genotypes to genotypes.

The total number of leaves production upto 75 DAP (Cumulative) indicates that the maximum number of leaves (17.47 leaves) were produced in M-9-111 (G₁₀) followed by Sanjivini (G₁) and Sree Pallavi. Leaves play a vital role in the production of carbohydrates through the process of photosynthesis and ultimately increase the vigour of plant.

Leaf length (cm)

All the genotypes of colocasia differed significantly for leaf length (Table3). At 15 DAP, the maximum leaf length (19.61 cm) was recorded in genotype Sree Pallavi (G₁₁) and it was at par with M-9-111 (18.14 cm), AC-20 (17.05 cm). Whereas, minimum leaf length (8.15 cm) was recorded by NDB-9 (G₂) genotype. At 30 DAP, maximum leaf length (29.81 cm) was recorded in genotype Sree Pallavi and it was at par with M-9-111 (27.73 cm). Whereas, minimum leaf length (13.53 cm) was recorded by NDB-9 (G₂) genotype. At 45 DAP, maximum leaf length (41.39 cm) was also recorded in genotype Sree Pallavi and it was at par with M-9-111 (38.85 cm), Kelva (37.62 cm). Whereas, minimum leaf length (27.62 cm) was recorded by NDB-9 genotype. At 60 DAP, Sree Pallavi exhibited maximum leaf length (48.57 cm) and it was at par with M-9-111 (46.41 cm), Mahim (44.96 cm) and Kelva (44.74 cm). Whereas, minimum leaf length was recorded by NDB-9 (33.92 cm) genotype. The similar drift was again noticed at 75 DAP, maximum leaf length was as well recorded in genotype Sree Pallavi (55.86 cm) and it was at par with M-9-111 (54.06 cm). Whereas, minimum leaf length was recorded by NDB-9 (43.03 cm) genotype.

The genotype Sree Pallavi exhibited the longest leaf length in its growing period. While NDB-9 had the shortest leaf length. The variations in leaf lamina length of different Colocasia collections were also reported by Ghosh *et al.* (2004) [6]

Choudhary *et al.* (2011) [5] and Paul and Bari (2011) [8]. They opined that the variability in leaf lamina length among the accession as well as local genotypes can be attributed to the genetic variation of the genotypes.

Leaf breadth (cm)

The data on leaf breadth of different colocasia genotypes is presented in Table 3. It is perused from the data that there was significant difference among all the colocasia genotypes for leaf breadth. At 15 DAP, maximum leaf breadth (15.03 cm) was recorded in genotype Sree Pallavi (G₁₁) and it was at par with M-9-111 (14.93 cm), Sanjivini (13.47 cm), Talsure (13.43 cm), M-12-429 (13.15 cm), Mahim (13.07 cm) and AC-20 (12.99 cm) Whereas, minimum leaf breadth (5.99 cm) was recorded by NDB-9 (G₉) genotype. At 30 DAP, maximum leaf breadth (21.28 cm) was observed in genotype Sree Pallavi (G₁₁) and it was closely followed by Mahim (20.87 cm), Sanjivini (20.59 cm), M-12-429 (20.53 cm), Talsure (19.99 cm), M-9-111 (19.93 cm), Sawantwadi (19.33 cm) and AC-20 (19.16 cm), Khed Shirvali (18.85 cm) and NDB-22 (17.66 cm). Whereas, minimum leaf breadth (11.47 cm) was again recorded by NDB-9 genotype. At 45 DAP, maximum leaf breadth (27.24 cm) was recorded in genotype Sree Pallavi (G₁₁) and it was at par with Mahim (27.17 cm), Sanjivini (27.05 cm), M-12-429 (25.59 cm), Talsure (25.26 cm) and AC-20 (25.09 cm). Whereas, minimum leaf breadth (18.91 cm) was recorded by NDB-9 genotype. At 60 DAP, maximum leaf breadth (35.11 cm) was also recorded in genotype Sree Pallavi and it was closely followed by Mahim (33.59 cm). The minimum leaf breadth (24.13 cm) was recorded by NDB-9 genotype. At 75 DAP, highest leaf breadth (42.50 cm) was observed in genotype Sree Pallavi and it was at par with Devakibai Walang (40.13 cm). While, minimum leaf breadth (31.52 cm) was recorded by Kelva genotype.

Similar observations were made by Chadha *et al.* (2007) [4], Choudhary *et al.* (2011) [5] and Paul and Bari (2011) [8] in different colocasia genotypes. They reported that the variability in leaf breadth among the genotypes might be due to genetic variation. Further, attaining higher leaf length/width is a good indicator as the leaf area of colocasia plants has important role on the interception of solar radiation and on biomass production (Bernardes *et al.* 2011). The present genotypes under study were having varied size and shape furthermore the respective parents might have contributed in deciding the shape of respective genotypes.

The genotype Sree Pallavi consistently produced maximum length and breadth of the leaves.

Petiole length (cm)

The data presented in Table 4 revealed that, there was significant variation among all the colocasia genotypes. At 15 DAP, the petiole length was highest (19.36 cm) in genotype AC-20 (G₁₄) and it was at par with NDB-22 (17.47 cm) and M-9-111(16.97 cm). Whereas, lowest petiole length (12.20 cm) was recorded by Sawantwadi (G₆) genotype. At 30 DAP, highest petiole length (30.20 cm) was recorded in genotype AC-20 and it was at par with NDB-22 (29.87 cm), M-9-111 (27.64 cm), Talsure (27.58 cm) and Sree Pallavi (27.16 cm). While, lowest petiole length was recorded by Devakibai Walanga (19.29 cm) genotype. At 45 DAP, longest petiole

length (46.76 cm) was again produced in genotype AC-20 and it was at par with NDB -22 (45.78 cm). Khed Shiravali (G₁₂) genotype produced shortest petiole length (33.21 cm). At 60 DAP, highest petiole length (52.04 cm) was recorded in genotype AC-20 and it was at par with NDB -22 (50.97 cm) and Sanjivani (50.22 cm). While, lowest petiole length (38.18 cm) was recorded by Khed Shiravali genotype. At 75 DAP, highest petiole length (57.55 cm) was recorded in genotype AC-20 and it was at par with NDB -22 (56.07 cm). Whereas, the lowest petiole length (43.14 cm) was recorded by Khed Shiravali genotype. The genotype Muktakeshi recorded 53.23 cm petiole length.

These observations are in harmony with the findings of Singh *et al.* (2003) and Chadha *et al.* (2007) [4] in colocasia. The reason for high petiole length in certain colocasia genotypes may be attributed to phenotypical characters of that particular genotype. The petiole length in colocasia is also associated with plant height.

Petiole girth (cm)

The data on petiole girth in different colocasia genotypes during the growth stages is given in Table 4. Significant differences were observed among all the colocasia genotypes. At 15 DAP, maximum petiole girth (2.80 cm) was recorded in Sree Pallavi (G₁₁). Whereas, minimum petiole girth was recorded by Muktakeshi (1.89 cm) genotype. At 30 DAP, maximum petiole girth (4.42 cm) was recorded in Sree Pallavi and it was at par with Talsure (4.33 cm), M-12-429 (4.28 cm) and Mahim (4.27 cm). Whereas, minimum petiole girth (2.36 cm) was recorded by NDB-9 genotype. At 45 DAP, maximum petiole girth (5.66 cm) was recorded in Sree Pallavi and it was at par with Talsure (5.62 cm). whereas, minimum petiole girth (4.31 cm) was recorded by M-9-111 genotype. At 60 and 75 DAP, maximum petiole girth was recorded in Sree Pallavi (6.81 cm and 7.13 cm, respectively) and it was at par with Talsure (6.61 cm at 60 DAP and 6.91 cm at 75 DAP). Whereas, minimum petiole length was recorded by NDB-9 (4.56 cm at 60 DAP and 4.84 cm at 75 DAP) genotype.

Paul and Bari (2011) [8] and Angami *et al.* (2015) [1] observed similar variations in petiole width of different taro genotypes. The variation in the petiole girth might be due to genetic and environmental effects.

Leaf area (cm²)

The data on Leaf area of different colocasia genotypes is given in Table5. It is revealed that the significant difference was observed among all the genotypes of colocasia for leaf area. At 45 DAP, maximum leaf area (741.11 cm²) was recorded in Khed Shiravali and it was at par with Sree Pallavi (734.86 cm²). While minimum leaf area (466.19 cm²) was recorded in M-12-429. The similar trend was observed at 60 and 75 DAP. The maximum leaf area was in Khed Shiravali genotype (745.74 cm² at 60 DAP and 747.29 cm² at 75 DAP). The least leaf area was in M-12-429 genotype. The variations in leaf area of different colocasia collections were also reported by Angami *et al.* (2015) [1] and Bassey *et al.* (2016) [2]. The leaf area might be interrelated to leaf shape, size and number of leaves. The variation in leaf area might be attributed to the plant architecture which is decided by the genetic makeup of respective genotypes and its interaction with the environment.

Table 1: Plant height and leaf thickness of different colocasia genotypes at 15 days interval after planting.

Genotypes	Plant height (cm)					Leaf thickness (mm)					
	15 DAP	30 DAP	45 DAP	60 DAP	75 DAP	15 DAP	30 DAP	45 DAP	60 DAP	75 DAP	
G ₁	Sanjivini	15.13	28.17	43.05	53.31	59.03	0.388	0.479	0.494	0.498	0.511
G ₂	NDB-9	15.56	27.54	41.49	49.17	53.85	0.351	0.447	0.480	0.488	0.515
G ₃	M-12-429	19.70	25.57	40.37	47.03	50.85	0.351	0.447	0.466	0.484	0.493
G ₄	Mahim	16.93	30.21	36.04	43.56	47.77	0.469	0.514	0.523	0.531	0.538
G ₅	Devkibai Walanga	15.05	27.38	36.31	48.41	50.97	0.384	0.468	0.491	0.505	0.513
G ₆	Sawantwadi	15.12	26.80	36.07	43.25	46.89	0.401	0.477	0.500	0.505	0.515
G ₇	Muktakeshi	16.43	28.54	37.09	45.33	47.70	0.387	0.428	0.475	0.482	0.495
G ₈	Kelva	19.11	29.97	39.24	49.04	52.22	0.377	0.419	0.453	0.469	0.473
G ₉	BCC -11	17.13	28.26	39.03	42.22	45.82	0.379	0.429	0.481	0.493	0.503
G ₁₀	M-9-111	20.83	33.34	41.46	48.58	53.13	0.377	0.453	0.503	0.509	0.517
G ₁₁	Sree Pallavi	20.06	33.74	41.73	49.51	53.45	0.387	0.428	0.463	0.486	0.499
G ₁₂	Khed Shiravali	16.82	28.09	35.69	42.53	46.37	0.407	0.474	0.487	0.506	0.515
G ₁₃	Talsure	18.12	31.36	37.84	46.72	49.25	0.427	0.494	0.505	0.515	0.525
G ₁₄	AC -20	21.35	34.56	49.25	55.93	60.34	0.377	0.449	0.505	0.512	0.493
G ₁₅	NDB-22	20.14	33.52	47.69	54.13	58.28	0.359	0.443	0.481	0.491	0.497
G ₁₆	Khopoli	18.47	29.03	35.01	43.95	46.13	0.371	0.462	0.495	0.507	0.484
	Mean	18.03	29.75	39.83	47.67	51.38	0.387	0.457	0.488	0.499	0.505
	SEm (±)	1.21	1.54	0.77	0.55	0.31	0.004	0.009	0.004	0.005	0.004
	CD at 5%	3.49	4.45	2.22	1.58	0.9	0.011	0.025	0.011	0.014	0.010

(DAP : Days after planting)

Table 2: Number of leaves plant⁻¹ in different colocasia genotypes

Genotypes	Number of leaves plant ⁻¹						
	15 DAP	30 DAP	45 DAP	60 DAP	75 DAP	Cumulative	
G ₁	Sanjivini	1.73	3.07	3.47	3.80	3.93	16.00
G ₂	NDB-9	1.40	2.80	3.13	3.33	3.47	14.13
G ₃	M-12-429	1.47	2.73	3.13	3.27	3.40	14.00
G ₄	Mahim	1.53	2.80	3.00	3.27	3.47	14.07
G ₅	Devkibai Walanga	1.47	2.67	2.80	2.93	3.13	13.00
G ₆	Sawantwadi	1.53	2.67	2.80	3.00	3.27	13.27
G ₇	Muktakeshi	1.33	2.53	2.73	2.93	3.20	12.73
G ₈	Kelva	1.53	2.67	2.93	3.00	3.07	13.20
G ₉	BCC -11	1.33	2.33	3.00	3.07	3.33	13.07
G ₁₀	M-9-111	1.87	3.33	3.93	4.13	4.20	17.47
G ₁₁	Sree Pallavi	1.53	3.13	3.33	3.47	3.67	15.13
G ₁₂	Khed Shiravali	1.53	2.60	2.80	2.93	3.07	12.93
G ₁₃	Talsure	1.67	2.67	2.87	3.00	3.13	13.33
G ₁₄	AC -20	1.33	2.60	2.80	3.07	3.33	13.13
G ₁₅	NDB-22	1.33	2.80	3.07	3.27	3.40	13.87
G ₁₆	Khopoli	1.27	2.40	2.67	2.87	3.07	12.27
	Mean	1.49	2.74	3.03	3.21	3.38	13.96
	SEm (±)	0.10	0.17	0.15	0.14	0.11	0.70
	CD at 5%	0.29	0.48	0.43	0.41	0.31	2.02

Table 3: Leaf length and breadth of different colocasia genotypes at 15 days interval after planting

Genotypes	Leaf length (cm)					Leaf breadth (cm)					
	15 DAP	30 DAP	45 DAP	60 DAP	75 DAP	15 DAP	30 DAP	45 DAP	60 DAP	75 DAP	
G ₁	Sanjivini	16.68	26.03	36.83	41.05	48.15	13.47	20.59	27.05	31.04	35.35
G ₂	NDB-9	8.15	13.53	27.62	33.92	43.03	5.99	11.47	18.91	24.13	33.05
G ₃	M-12-429	15.05	23.42	35.39	40.09	46.88	13.15	20.53	25.59	29.57	35.35
G ₄	Mahim	14.29	24.48	38.26	44.99	50.87	13.07	20.87	27.17	33.59	38.59
G ₅	Devkibai Walanga	12.93	23.25	33.80	39.20	45.12	9.13	15.43	23.32	30.02	40.13
G ₆	Sawantwadi	12.33	22.16	32.85	38.03	43.74	9.36	19.33	24.28	30.02	37.32
G ₇	Muktakeshi	11.38	23.74	34.92	41.27	49.20	8.59	16.94	21.07	26.22	32.79
G ₈	Kelva	14.80	23.58	37.62	44.74	51.14	10.71	15.85	22.18	26.72	31.52
G ₉	BCC -11	12.47	19.59	28.65	34.19	40.03	8.31	15.90	21.33	27.11	34.02
G ₁₀	M-9-111	18.14	27.73	38.85	46.41	54.06	14.93	19.93	21.31	26.97	32.08
G ₁₁	Sree Pallavi	19.61	29.81	41.39	48.57	55.86	15.03	21.28	27.24	35.11	42.50
G ₁₂	Khed Shiravali	15.97	24.03	34.89	41.82	49.80	11.70	18.85	24.99	31.56	37.59
G ₁₃	Talsure	15.34	20.39	31.77	40.64	47.09	13.43	19.99	25.26	29.93	34.80
G ₁₄	AC -20	17.05	24.51	34.85	43.65	51.01	12.99	19.16	25.09	31.10	37.03
G ₁₅	NDB-22	15.19	23.74	32.87	41.13	47.78	10.51	17.66	23.67	29.83	37.06
G ₁₆	Khopoli	13.67	21.47	30.43	37.85	45.84	11.15	16.58	22.94	28.81	34.82
	Mean	14.57	23.22	34.44	41.10	48.10	11.35	18.15	23.84	29.48	35.87
	SEm (±)	1.01	1.22	1.48	1.55	1.37	0.98	1.43	0.93	1.02	1.19
	CD at 5%	2.91	3.53	4.28	4.49	3.94	2.83	4.13	2.69	2.96	3.44

(DAP: Days after planting)

Table 4: Petiole length and girth of different colocasia genotypes at 15 days interval after planting

Genotypes	Petiole length (cm)					Petiole girth (cm)				
	15 DAP	30 DAP	45 DAP	60 DAP	75 DAP	15 DAP	30 DAP	45 DAP	60 DAP	75 DAP
G ₁ Sanjivini	12.47	24.31	40.32	50.22	55.14	2.25	3.54	4.82	5.94	6.10
G ₂ NDB-9	12.91	20.04	39.05	46.10	50.60	1.95	2.36	4.32	4.56	4.84
G ₃ M-12-429	16.25	22.50	37.04	44.28	47.88	2.60	4.28	5.54	5.97	6.53
G ₄ Mahim	12.75	25.46	33.40	40.25	46.88	2.08	4.27	4.81	5.53	6.02
G ₅ Devkibai Walanga	13.77	19.29	34.57	46.58	52.93	1.99	3.35	4.91	5.33	5.49
G ₆ Sawantwadi	12.20	19.30	33.55	41.87	45.25	2.35	3.15	4.80	5.63	5.53
G ₇ Muktakeshi	13.81	25.99	34.61	43.38	53.23	1.89	3.01	4.72	5.16	5.26
G ₈ Kelva	16.01	25.45	35.80	46.72	52.62	1.95	3.04	5.13	5.75	5.86
G ₉ BCC -11	14.39	22.80	37.35	40.61	46.26	2.15	3.58	4.72	5.26	5.59
G ₁₀ M-9-111	16.97	27.64	37.15	43.98	50.53	1.97	3.86	4.31	5.00	5.40
G ₁₁ Sree Pallavi	16.12	27.16	36.74	45.42	54.14	2.80	4.42	5.66	6.81	7.13
G ₁₂ Khed Shiravali	13.27	23.28	32.21	38.18	43.14	2.09	3.39	4.39	5.58	5.46
G ₁₃ Talsure	14.77	27.58	34.05	43.14	53.40	2.01	4.33	5.62	6.61	6.91
G ₁₄ AC -20	19.36	30.20	46.76	52.04	57.55	2.32	3.58	5.37	5.86	6.19
G ₁₅ NDB-22	17.47	29.87	45.78	50.97	56.07	2.20	3.79	4.90	5.33	5.50
G ₁₆ Khopoli	15.01	24.31	33.82	41.70	45.85	2.06	3.34	4.99	5.40	5.62
Mean	12.47	24.31	40.32	50.22	55.14	2.17	3.58	4.94	5.61	5.84
SEm (±)	1.08	1.18	0.99	0.81	0.82	0.03	0.06	0.03	0.09	0.18
CD at 5%	3.12	3.42	2.85	2.35	2.36	0.09	0.17	0.09	0.26	0.53

(DAP: Days after planting)

Table 5: Leaf area of different colocasia genotypes

Genotypes	Leaf area (cm ²)		
	45 DAP	60 DAP	75 DAP
G ₁ Sanjivini	472.59	475.55	481.76
G ₂ NDB-9	486.21	485.39	483.36
G ₃ M-12-429	466.19	467.02	464.06
G ₄ Mahim	613.51	615.81	612.35
G ₅ Devkibai Walanga	638.84	632.74	640.93
G ₆ Sawantwadi	647.98	645.71	649.13
G ₇ Muktakeshi	604.81	599.65	602.28
G ₈ Kelva	584.40	581.95	577.57
G ₉ BCC -11	682.96	678.49	681.14
G ₁₀ M-9-111	484.07	485.39	482.03
G ₁₁ Sree Pallavi	734.86	736.97	739.72
G ₁₂ Khed Shiravali	741.11	745.74	747.29
G ₁₃ Talsure	712.90	713.54	715.37
G ₁₄ AC -20	481.00	482.27	480.30
G ₁₅ NDB-22	481.61	484.33	482.17
G ₁₆ Khopoli	614.71	609.63	611.04
Mean	590.77	589.72	590.66
SEm (±)	8.16	7.42	7.63
CD at 5%	23.57	21.44	22.02

Conclusion

From the results of the present study, it is evident that the colocasia genotypes viz., M-9-111, Khed Shiravali and NDB-9 have performed best in terms of growth parameter under Konkan agroclimatic conditions and have potential for further exploitation in crop improvement programme.

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