



ISSN (E): 2277-7695  
ISSN (P): 2349-8242  
NAAS Rating: 5.23  
TPI 2023; 12(7): 2340-2342  
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[www.thepharmajournal.com](http://www.thepharmajournal.com)  
Received: 26-05-2023  
Accepted: 30-06-2023

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## Effect of different rooting media on performance of African marigold (*Tagetes erecta* L.) cv. Pusa Basanti Gainda through stem cutting

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### Abstract

The present investigation effect of different rooting media on performance of African Marigold (*Tagetes erecta* L.) cv. Pusa Basanti Gainda through stem cutting was carried out at Horticultural Research cum Instructional Farm Pt. K.L.S. College of Horticulture and Research Station, Rajnandgaon, IGKV Raipur (C.G.) during the year 2018-19. The experimental field was designed in a randomized block design with three repetitions in the main field. Each replication consisted of 14 treatments. In the present study the different rooting media were Soil (T<sub>1</sub>), Sand (T<sub>2</sub>), Vermi-compost (T<sub>3</sub>), FYM (T<sub>4</sub>), Cocopeat (T<sub>5</sub>), Vermi-compost + Soil (T<sub>6</sub>), Vermi-compost + Sand (T<sub>7</sub>), Vermi-compost + Soil + Sand (T<sub>8</sub>), FYM + Soil (T<sub>9</sub>), FYM + Sand (T<sub>10</sub>), FYM + Soil + Sand (T<sub>11</sub>), Cocopeat + Soil (T<sub>12</sub>), Cocopeat + Sand (T<sub>13</sub>) and Cocopeat + Soil + Sand (T<sub>14</sub>) etc. The size of plot 1.0 m x 1.0 m and spacing (R x P) 30 cm x 30 cm. The result indicated that the rooting media of cocopeat significantly influence the first bud appearance (33.33 days), days to first flowering (40.13 days), number of flowers per plant (61.93), Flower diameter (6.59 cm), flower yield per plant (242.33 g) and yield of flower (26.00 t/ha).

**Keywords:** Rooting media, FYM, cocopeat, pinching, flower bud

### Introduction

African marigold has a place with family Compositae is the most normally developed free bloom and is widely utilized in religious and social function. The *Tagetes erecta* L. is a chromosome number  $2n = 24$ . It is currently multi day's increasing business significance as a wellspring of carotenoid shades. The foremost shade present in the roses is xanthophyll; especially lutein represents 80-90 percent as esters of palmitic and myristic acid. The ground flower meals (petal meal) or the source usually saponified for improved assimilation is used to the poultry fodder. These yields are occupation as Aztec marigold as Adoptinal. (Jadhav *et al.*, 2014) [4]. Pusa Basanti Gainda was created by pedigree hybridization by crossing two exotic varieties Golden Yellow x Sun Giant. It is a little late developing assortment which takes 135-145 days. The blossoming span is long (40-45 days), plants are 60-65 cm tall, incredible and uniform with dim green foliage. Blooms sulfur yellow shaded, carnation type, twofold and minimal. It is perfect for free blossom creation and furthermore for developing in pots and beds in the patio nursery.

### Material and Methods

The experimental field was designed in a randomized block design with three repetitions in the main field. Each replication consisted of 14 treatments.

In the present study the different rooting media were Soil (T<sub>1</sub>), Sand (T<sub>2</sub>), Vermi-compost (T<sub>3</sub>), FYM (T<sub>4</sub>), Cocopeat (T<sub>5</sub>), Vermi-compost + Soil (T<sub>6</sub>), Vermi-compost + Sand (T<sub>7</sub>), Vermi-compost + Soil + Sand (T<sub>8</sub>), FYM + Soil (T<sub>9</sub>), FYM + Sand (T<sub>10</sub>), FYM + Soil + Sand (T<sub>11</sub>), Cocopeat + Soil (T<sub>12</sub>), Cocopeat + Sand (T<sub>13</sub>), Cocopeat + Soil + Sand (T<sub>14</sub>). The size of plot 1.0 m x 1.0 m and spacing (R x P) 30 cm x 30 cm. Field preparation was completed by power tiller cultivator pursued by two cross-nerves racking to pummel the soil. Finally, the field was leveled with the spade and after that experiment as per experimental design as spread out in the suggested plot size of filled. All things considered FYM @ 20 t/ha were connected according to the treatment to each exploratory plot before planting. Urea, SSP and MOP were utilized as manures for N, P and K individually. Pinching was done in all experimental plots for two times in 25 days and 40 days after planting. In the wake of planting the established cutting in the field situation, the principal water system was given by the assistance of rose can and water

system was given through drip irrigation system balanced by the necessity of the crop. Weeding was done at an interim of 15-20 days. The marigold plant for protection methods was executed from time to time for establishing vigorous crops.

## Results and Discussion

### First bud appearance (days)

The media of cocopeat showing the maximum day to first bud appearance (33.33 days) followed by sand (30.00 days) and cocopeat + soil + sand (28.76 days). The minimum days (18.00 days) for the first appearance of bud were observed with control. Significantly early flower bud initial (45.43 days) was observed in T<sub>10</sub> i.e. Cocopeat + Vermicompost + Bio compost. It might be due to the vigorous growth of the plant growing in the media and the rapid uptake of nutrients and water has a pronounce effect on early production Padhiyar *et al.* (2017) [6]

### Days to first flowering (days)

The maximum number of days to first flowering was observed in T<sub>5</sub> (40.13 days) and minimum was in T<sub>10</sub> (25.33 days). It was observed that the days before the first flowering were influenced from the days until the first appearance of the bud. The pinching treatment delayed the first flowering in marigold. This might be due to the fact that pinched plants took more time to become physiologically mature enough to enter into reproductive face. These result in nearest with the finding of Srivastava *et al.* (2005) [10] in marigold.

### Number of flower per plant

Cocopeat showed maximum number of flowers per plant (61.93) followed by sand (59.06), cocopeat + soil + sand (57.33) and cocopeat + sand (54.26). The minimum number of flowers per plant was showed in FYM (39.46). The pinching treatment number of flowers was found to be increased. Pinched plants observed maximum number of flowers per plant in marigold. This is accordance with the

finding of Tomer *et al.* (2004) [11] in marigold.

### Flower diameter (cm)

The maximum flower diameter (6.59 cm) was recorded under treatment cocopeat followed by cocopeat + soil + sand (6.48 cm) and vermi-compost (6.46 cm). FYM gave the flower of minimum size (4.68 cm). Doddagoudar *et al.* (2004) [3] reported that rapid mobilization and accumulation of metabolites influence of floral morphogenesis, which results in larger flowers. Furthermore, better translocation of the food materials in the flowers which increases the resistance of the sink may have influenced the diameter of the flower.

### Yield of flower per plant (g)

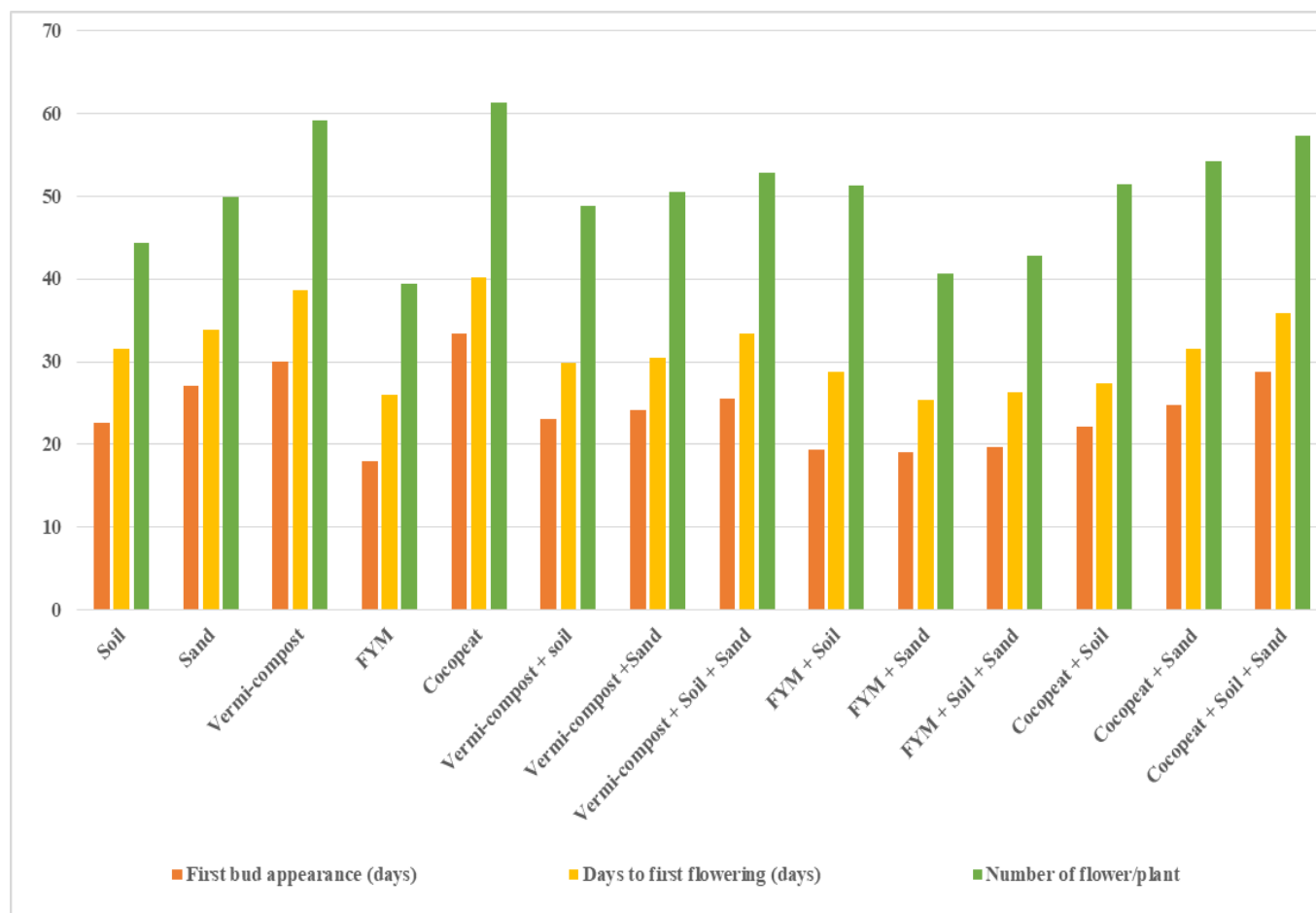
Maximum weight of flower per plant (242.33 g) was found with the treatment cocopeat followed by vermi-compost (234.33 g), cocopeat + soil + sand (229.67 g) and cocopeat + sand (218.33 g). The minimum yield of flowers per plant (139.66 g) was obtained in FYM. Flower yield per plant was significantly influenced by pinching. Highest flower yield was recorded in pinched plants in the crops. Similar results were reported by Srivastava *et al.* (2005) [10], Chauhan *et al.* (2005) [2], Sharma *et al.* (2012) [8], Mohanty *et al.* (2015) [5] in African marigold.

### Flower yield per hectare (t)

Cocopeat showed maximum number of flowers per plant (26.00 t/ha) followed by vermi-compost (23.00 t/ha), cocopeat + soil + sand (21.60 t/ha) and cocopeat + sand (20.00 t/ha). The minimum number of flowers per plant was showed in FYM (12.00 t/ha). The yield of the flower per hectare can be varied due to the positive correlation with the number of flowers per plant, the diameter of the flower and the weight of the plant. These results are in agreement with the discovery of Rao *et al.* (2005) [7], Singh and Singh (2006) [9], Beniwal and Dahiya (2012) [11] in marigold.

**Table 1:** Effect of rooting media on performance of African marigold through stem cutting

Treatments	First bud appearance (days)	Days to first flowering (days)	Number of flower/plant	Flower diameter (cm)	Yield of flower (g)	Flower yield (t/ha)
Soil	22.66	31.53	44.33	6.27	14900	14.07
Sand	27.00	33.86	49.86	5.62	15800	15.27
Vermi-compost	30.00	38.66	59.06	6.46	23433	223.00
FYM	18.00	25.93	39.46	4.68	13966	12.00
Cocopeat	33.33	40.13	61.33	6.59	24233	26.00
Vermi-compost + soil	23.00	29.86	48.86	5.98	18866	17.20
Vermi-compost + Sand	24.12	30.46	50.56	6.00	18266	16.07
Vermi-compost + Soil + Sand	25.50	33.33	52.80	6.14	20866	18.00
FYM + Soil	19.44	28.80	51.26	5.32	14133	12.67
FYM + Sand	19.06	25.33	40.66	5.00	14033	12.07
FYM + Soil + Sand	19.71	26.33	42.86	4.80	14333	17.93
Cocopeat + Soil	22.16	27.46	51.40	6.04	19300	20.00
Cocopeat + Sand	24.70	31.53	54.26	6.32	21833	21.60
Cocopeat + Soil + Sand	28.76	35.93	57.33	6.48	22967	21.60
SEm	1.08	1.17	1.005	0.19	1.53	0.44
CD (P=0.05)	3.17	3.42	2.93	0.56	4.57	1.30



**Fig 1:** Effect of rooting media on performance of flowering & yield of marigold through stem cutting

## Conclusions

The analyses of the performance of different rooting media on the growth of main filed in flowering attributes and yield that the cocopeat is the best for the First bud appearance, days to first flowering, number of flowers per plant, flower diameter, flower yield per plant and flower yield per hectare

## References

1. Beniwal BS, Dahiya, SS. Variability studies in marigold (*Tagetes* spp.). In: Abstracts of National Seminar on Sustainable Agriculture and Food Security: Challenges in Changing Climate held at CCS Haryana Agril. Uni., Hisar, Haryana. 2012; March 27-28: p-298.
2. Chauhan S, Singh CN, Singh, AK. Effect of Vermicompost and pinching on growth and flowering in marigold cv. Pusa narangi gainda. Prog. Hortic. 2005;37(2):419.
3. Doddagoudar SR, Vyakaranahal BS, Shekhargouda M. Effect of chemical sprays on seed quality parameters of China aster. J Ornament. Hortic. 2004;7(3-4):135-137.
4. Jadhav PB, Singh A, Mangave BD, Patil NB, Patel DJ, Dekhane SS, et al. Effect of organic and inorganic fertilizers on growth and yield of African Marigold (*Tagetes erecta* L.) Cv. Pusa Basanti Gainda. Ann. Biol. Res. 2014;5(9):10-14.
5. Mohanty CR, Mohanty A, Parhi R. Effect of planting dates and pinching on growth and flowering in African marigold cv. SIRAKOLE. Asian J. Hortic. 2015;10(1):95-99.
6. Padhiyar BM, Bhatt DS, Desai KD, Patel VH, Chavda JR. Influence of different potting media on growth and flowering of pot chrysanthemum var. ajina purple. Int. J. Chem. Stud. 2017;5(4):1667-1669.
7. Rao CC, Goud PV, Reddy KM, Padmaja G. Screening of African marigold (*Tagetes erecta* L.) cultivars for flower yield and carotenoid pigments. Indian J. Hortic. 2005;62(3):276-279.
8. Sharma AK, Chaudhary SVS, Bhatia, RS. Effect of spacing and pinching on regulation of flowering in African marigold (*Tagetes erecta* Linn.) under submontane low hill conditions of Himachal Pradesh. Prog. Agric. 2012;12(2):331-336.
9. Singh D, Singh AK. Characterization of African marigold (*Tagetes erecta* Linn.). J Ornament. Hortic. 2006;9(1):40-42.
10. Srivastava SK, Singh HK, Srivastava AK. Spacing and pinching as factors for regulating flowering in marigold cv. Pusa Basanti Gainda. Haryana J Hortic. Sci. 2005, 34(1-2).
11. Tomar, BS, Singh, B, Negi, HCS, Singh, KK. Effect of pinching on seed yield and quality traits in African marigold. J Ornament. Hortic. 2004;7(1):124-126.