



Plant Archives

Journal homepage: <http://www.plantarchives.org>

DOI Url : <https://doi.org/10.51470/PLANTARCHIVES.2026.v26.supplement-2.114>

EFFECT OF ENRICHED POTTING MEDIA AND JEEVAMRUT APPLICATION ON GROWTH AND FLOWERING OF POT MUM (*Chrysanthemum morifolium*)

Prerana Patil, M. K. Sharma and Kajal Patel

Department of Floriculture and Landscape Architecture, College of Horticulture, S.D.A.U., Jagudan, Gujarat, India

*Corresponding author E-mail: patilprerana2000@gmail.com

(Date of Receiving : 22-02-2026; Date of Revision : 06-04-2026; Date of Acceptance : 28-04-2026)

ABSTRACT

An experiment titled “Effect of enriched potting media and *jeevamrut* application on growth and flowering of pot mum (*Chrysanthemum morifolium*)” was conducted during 2024-25 at the College of Horticulture, S. D. Agricultural University, Jagudan, Gujarat. In this study completely randomized design with factorial concept having three repetitions and consisted of sixteen treatment combinations including eight different potting media. Among potting media, P₇ (soil + microbial consortia enriched vermicompost, 1:2 v/v) recorded maximum vegetative growth, flowering traits and superior pot presentability. J₂ (*jeevamrut* drenching @ 100 ml pot⁻¹ + foliar spray @ 150 ml L⁻¹ at 15-day intervals) enhanced growth and flowering traits. The interaction P₇J₂ significantly outperformed others, producing the highest shoot and root biomass, number and weight of flowers, and pot presentability score. Thus, P₇J₂ was identified as the most effective treatment for growth and flowering of pot mums under pot culture.

Keywords : Enriched potting media, *jeevamrut* application, growth and flowering parameters.

Introduction

Chrysanthemum is an excellent herbaceous perennial flowering plant, belonging to the family Asteraceae and grown as a cut flower, loose flower and as potted plant throughout the sub-tropical and tropical world. It is also used for interior decoration, flower arrangement, garland and bouquets preparation. In India, it is popularly known as *Sevanti* and *Guldaudi*. The genus *Chrysanthemum* consists of 160 species with diverse forms, types and wide spectrum of colour ranges. Potted chrysanthemums are a popular choice for beautification living space, balconies and patios. Being portable, adaptable and cost-effective, pot chrysanthemum holds a special preference among plant enthusiasts and landscape designers to meet the growing demand of potted plant in the era of rapid urbanization and fast changing lifestyles.

As organic farming is a method of production that combines traditional agriculture with innovation and science, it is set to sustain or enhance soil quality, enhance biological diversity and preserve natural resources.

Material and Methods

The experiment was conducted at College of Horticulture, S. D. Agricultural University, Jagudan, Gujarat during August 2024-January 2025. The experiment was laid out in completely randomized design with factorial concept consisted of sixteen treatments (10 plants per treatment) and repeated in thrice. An experiment conducted in pots using different eight enriched potting media combinations viz., (P₁) soil + microbial consortia enriched FYM (1:1 v/v), (P₂) soil + microbial consortia enriched cocopeat (1:1 v/v), (P₃) soil + microbial consortia enriched vermicompost (1:1 v/v), (P₄) soil + microbial consortia enriched *ghanjeevamrut* (1:1 v/v), (P₅) soil + microbial consortia enriched FYM (1:2 v/v), (P₆) soil + microbial consortia enriched cocopeat (1:2 v/v), (P₇) soil + microbial consortia enriched vermicompost (1:2 v/v), (P₈) soil + microbial consortia enriched *ghanjeevamrut* (1:2 v/v) and two *jeevamrut* application i.e., (J₁) *jeevamrut* drenching (50 ml pot⁻¹) and foliar spray (75 ml L⁻¹) at 15 days interval, alternately and (J₂) *jeevamrut* drenching (100 ml pot⁻¹) and *jeevamrut*

foliar spray (150 ml L⁻¹) at 15 days interval, alternately. The terminal rooted cuttings of chrysanthemum variety Ajina purple were used in experiment. The observations data recorded on growth, flowering of media was subjected to statistical analysis.

Results and Discussion

Effect of enriched potting media

The data pertaining (Table 1 & 2), P₇ i.e., soil + microbial consortia enriched vermicompost (1:2 v/v) showed significantly maximum plant height at 40 DAT (14.89 cm) and 60 DAT (21.02 cm) Increase in plant height due to vermicompost and *ghanjeevamrut* treatments has also been reported by Sardoei *et al.* (2014) in marigold and Sangwan *et al.* (2010) and Ikram *et al.* (2012) in tuberose and number of primary branches (11.26 plant⁻¹) Such beneficial effect of vermicompost on enhancing branches count have also been reported by Padhiyar *et al.* (2017) in chrysanthemum and Deogade *et al.* (2020) in calendula, plant spread (12.40 cm in E-W and 15.52 cm N-S directions), these results relate with the findings of Nair and Bharathi (2015) in chrysanthemum and Deogade *et al.* (2020) in calendula. Chrysanthemum, fresh weight of plant shoot (50.94 g) and root biomass (16.98 g), dry weight of plant shoot (15.28 g) and root biomass (5.09 g) at full bloom stage. However, P₇ treatment being at par with P₈ for plant height at 60 DAT (19.15 cm) and P₈ (49.37 g plant⁻¹) and P₃ (49.09 g plant⁻¹) at full bloom stage. Treatment P₇ also recorded earlier flower bud initiation and colour break stage (96.39 DAT and 106 DAT), also found considerable amount of humic substrates and phytohormones in vermicompost that improved calendula plant nutrition. Similar variation for colour breaks due to potting media was earlier reported by Kiran *et al.* (2007) in dahlia and Padhiyar *et al.* (2017) in pot chrysanthemum. Maximum longevity of intact flower (13.27 days), duration of flowering (58.16 days) beneficial effect of vermicompost in respect to duration of flowering was earlier by Nair and Bharathi (2015) and Padhiyar *et al.* (2017) in chrysanthemum. Number of flowers (63.92 plant⁻¹) these findings are in accordance with the findings of Nair and Bharathi (2015) in chrysanthemum and Arunesh *et al.* (2020) in gerbera. Weight of flower (95.88 g plant⁻¹), flower diameter (3.65 cm), flower weight (2.13 g), the variation in flower weight due to different growing media was earlier reported by Padhiyar *et al.* (2017) in chrysanthemum, pot presentability score (87.42).

Effect of *jeevamrut* application

Various treatments have been statistically analyzed and presented in Table 1 & 2, among the *jeevamrut* application, J₂ (*jeevamrut* drenching @100 ml pot⁻¹ and *jeevamrut* foliar spray @150 ml L⁻¹ at 15 days' interval, alternately responded by maximum plant height (12.81 cm at 40 DAT & 18.93 cm at 60 DAT), number of primary branches (10.21 plant⁻¹), plant spread (10.70 cm in E-W & 13.87 cm in N-S). This improvement in plant spread might be due to the rich composition of *jeevamrut*, which includes cow dung, cow urine, legume flour and jaggery with inoculation of microbes by live soil that provides macro and micronutrients, vitamins, essential amino acids, growth promoting substances after conversion through several mechanisms in marigold (Singh *et al.*, 2015 and Choudhary *et al.*, 2021), fresh (48.61 g & 16.02 g) and dry (14.60 g & 4.18 g) weight of plant shoot and root biomass, respectively at full bloom stage. J₂ treatment also showed earliest initiation of flower bud and visibility of colour break (103.26 DAT and 114.24 DAT), maximum number (55.88) and weight (83.81 g) of flowers per plant, these findings are in accordance with the findings of Kareem *et al.* (2014) and Nair and Bharathi (2015) in chrysanthemum and Arunesh *et al.* (2020) in gerbera, maximum flower diameter (3.48 cm), individual flower weight (1.68 g) and highest pot presentability score (83.25).

Effect of interaction of potting media x *jeevamrut* application

Table 3 exhibited the combined effect of enriched potting media and *jeevamrut* application, among the treatment combination, P₇J₂ i.e. soil + microbial consortia enriched vermicompost (1:2 v/v) and *jeevamrut* drenching (100 ml pot⁻¹) and foliar spray (150 ml L⁻¹) at 15 days interval, alternately was recorded significantly maximum number of primary branches (13.38 plant⁻¹), fresh (51.56 & 15.57 g plant⁻¹) and dry (17.18 & 5.16 g plant⁻¹) shoot and root weight of biomass at full bloom stage. P₇J₂ treatment also showed, the maximum number of flowers (70.00 plant⁻¹), weight of flower per plant (3.80 g), individual flower weight (1.68 g), flower diameter (3.48 cm), pot presentability score (89.88). However, P₇J₂ treatment being at par with P₃J₂ (12.62 plant⁻¹) and P₈J₂ (12.55 plant⁻¹) for number of primary branches, fresh weight of shoot biomass P₃J₂ (50.65 g plant⁻¹), P₈J₂ (50.40 g plant⁻¹) and P₇J₁ (50.32 g plant⁻¹), flower diameter (3.63 cm), P₃J₂ (3.60 cm) and pot presentability score (83.55)

Conclusion

It is concluded that using soil + microbial consortia enriched vermicompost (1:2 v/v) potting media along with *jeevamrut* drenching (100 ml pot⁻¹) followed by *jeevamrut* foliar spray (150 ml L⁻¹) at 15

days interval, alternately has been found beneficial in terms of good plant growth, flowering parameters, most desirable and presentable potted plant for pot mum.

Table 1: Effect of enriched potting media and *jeevamrut* application on vegetative parameters

Treatments	Plant height (cm)		Number of branches (plant ⁻¹)	Plant spread (cm)		Fresh weight of shoot biomass (g plant ⁻¹)	Fresh weight of root biomass (g plant ⁻¹)	Dry weight of shoot biomass (g plant ⁻¹)	Dry weight of root biomass (g plant ⁻¹)
	40 DAT	60 DAT		(E-W)	(N-S)				
Factor A - Potting media (P)									
P ₁ : Soil + microbial consortia enriched FYM (1:1 v/v)	11.70	17.82	7.67	8.55	12.22	46.98	15.35	14.09	4.61
P ₂ : Soil + microbial consortia enriched cocopeat (1:1 v/v)	10.92	17.04	7.08	11.04	12.40	46.57	14.90	13.82	4.47
P ₃ : Soil + microbial consortia enriched vermicompost (1:1 v/v)	12.71	18.83	10.33	9.05	13.68	49.09	16.36	14.73	4.91
P ₄ : Soil + microbial consortia enriched <i>ghanjeevamrut</i> (1:1 v/v)	11.94	18.13	9.14	9.83	13.08	47.28	15.76	14.19	4.73
P ₅ : Soil + microbial consortia enriched FYM (1:2 v/v)	12.09	18.27	8.33	10.52	13.37	46.85	15.61	14.06	4.68
P ₆ : Soil + microbial consortia enriched cocopeat (1:2 v/v)	11.64	17.76	6.67	8.19	11.44	45.79	13.93	13.74	4.18
P ₇ : Soil + microbial consortia enriched vermicompost (1:2 v/v)	14.89	21.02	11.26	12.40	15.52	50.94	16.98	15.28	5.09
P ₈ : Soil + microbial consortia enriched <i>ghanjeevamrut</i> (1:2 v/v)	13.03	19.15	10.44	11.76	13.53	49.37	15.95	14.81	4.79
S.Em.±	0.15	0.23	0.23	0.18	0.25	0.66	0.22	0.20	0.07
C.D. at (P = 0.05)	0.42	0.66	0.65	0.50	0.70	1.87	0.62	0.56	0.19
Factor B - <i>Jeevamrut</i> application (J)									
J ₁ : <i>Jeevamrut</i> drenching (50 ml pot ⁻¹) and <i>jeevamrut</i> foliar spray (75 ml L ⁻¹) at 15 days interval, alternately	11.92	18.07	7.52	9.64	12.44	46.98	15.18	14.09	4.56
J ₂ : <i>Jeevamrut</i> drenching (100 ml pot ⁻¹) and <i>jeevamrut</i> foliar spray (150 ml L ⁻¹) at 15 days interval, alternately	12.81	18.93	10.21	10.70	13.87	48.61	16.02	14.60	4.81
S.Em.±	0.15	0.15	0.11	0.09	0.12	0.33	0.11	0.10	0.03
C.D. at (P = 0.05)	0.42	0.42	0.33	0.25	0.35	0.93	0.31	0.28	0.09
Interaction (P × J)									
S.Em.±	0.42	0.42	0.32	0.25	0.35	0.93	0.31	0.27	0.09
C.D. at (P = 0.05)	NS	NS	0.92	NS	NS	2.64	0.88	0.78	0.26
C.V. (%)	5.86	3.93	6.33	4.22	4.59	3.36	3.41	3.31	3.41

Table 2: Effect of enriched potting media and *jeevamrut* application on flowering parameters

Treatments	Days taken to first flower bud initiation (DAT)	Days taken to colour break stage (DAT)	Longevity of the intact flower (days)	Duration of flowering (days)	Number of flowers (plant ⁻¹)	Weight of flowers (g plant ⁻¹)	Flower diameter (cm)	Flower weight (g)	Pot presentability score
Factor A - Potting media (P)									
P ₁ : Soil + microbial consortia enriched FYM (1:1 v/v)	105.72	116.17	12.30	48.83	49.25	73.88	3.26	1.26	81.14
P ₂ : Soil + microbial consortia enriched cocopeat (1:1 v/v)	109.98	122.56	11.83	42.44	40.64	60.96	2.97	1.09	80.37

P ₃ : Soil + microbial consortia enriched vermicompost (1:1 v/v)	98.30	108.75	12.83	56.25	58.50	87.75	3.44	1.97	84.15
P ₄ : Soil + microbial consortia enriched <i>ghanjeevamrut</i> (1:1 v/v)	102.30	112.75	11.73	52.25	56.25	84.38	3.41	1.72	82.91
P ₅ : Soil + microbial consortia enriched FYM (1:2 v/v)	104.87	115.32	11.97	49.68	53.33	80.00	3.31	1.35	82.48
P ₆ : Soil + microbial consortia enriched cocopeat (1:2 v/v)	114.97	123.29	10.90	41.71	40.25	60.38	2.91	1.04	77.33
P ₇ : Soil + microbial consortia enriched vermicompost (1:2 v/v)	96.39	106.84	13.17	58.16	63.92	95.88	3.65	2.13	87.42
P ₈ : Soil + microbial consortia enriched <i>ghanjeevamrut</i> (1:2 v/v)	101.00	111.45	12.50	53.55	59.92	89.88	3.59	2.10	82.89
S.E.m.±	1.41	1.41	0.22	1.41	1.30	1.97	0.05	0.04	1.01
C.D. at (P = 0.05)	4.01	4.01	0.63	4.01	3.69	5.60	0.14	0.11	2.87
Factor B - Jeevamrut application (J)									
J ₁ : <i>Jeevamrut</i> drenching (50 ml pot ⁻¹) and <i>jeevamrut</i> foliar spray (75 ml L ⁻¹) at 15 days interval, alternately	105.12	115.04	12.05	49.96	49.72	74.46	3.15	1.47	81.43
J ₂ : <i>Jeevamrut</i> drenching (100 ml pot ⁻¹) and <i>jeevamrut</i> foliar spray (150 ml L ⁻¹) at 15 days interval, alternately	103.26	114.24	12.26	50.76	55.88	83.81	3.48	1.68	83.25
S.E.m.±	0.70	0.71	0.11	0.70	0.65	0.98	0.02	0.02	0.50
C.D. at (P = 0.05)	NS	NS	NS	NS	1.85	2.80	0.07	0.05	1.43
Interaction (P × J)									
S.E.m.±	1.99	2.00	0.31	1.99	1.83	2.78	0.07	0.05	1.43
C.D. at (P = 0.05)	NS	NS	NS	NS	5.22	7.92	0.20	0.15	4.06
C.V. (%)	3.31	3.01	4.49	6.85	6.02	6.09	3.65	5.72	3.00

Table 3: Number of branches per plant, fresh and dry weight of shoot and root biomass, Weight of flowers, Flower diameter and weight, pot presentability at full bloom stage influenced by P × J interaction.

Treatment combinations	Number of branches (plant ⁻¹)	Fresh weight of shoot biomass (g plant ⁻¹)	Fresh weight of root biomass (g plant ⁻¹)	Dry weight of shoot biomass (g plant ⁻¹)	Dry weight of root biomass (g plant ⁻¹)	Number of flowers (plant ⁻¹)	Weight of flowers (g plant ⁻¹)	Flower diameter (cm)	Flower weight (g)	Pot presentability score
P ₁ J ₁	6.00	45.60	14.66	13.68	4.40	48.50	72.75	3.08	1.19	79.81
P ₁ J ₂	9.34	48.35	16.04	14.51	4.81	50.00	75.00	3.45	1.95	82.48
P ₂ J ₁	7.12	44.93	14.64	14.16	4.39	41.12	60.68	2.84	1.15	77.63
P ₂ J ₂	7.43	47.98	15.99	14.40	4.80	40.83	61.25	3.12	1.02	80.62
P ₃ J ₁	8.05	47.93	15.98	14.38	4.76	53.83	80.75	3.28	1.70	82.48
P ₃ J ₂	12.62	50.65	16.75	15.08	5.02	63.17	94.75	3.60	2.24	84.86
P ₄ J ₁	8.52	45.82	15.27	13.75	4.58	51.50	77.25	3.07	1.53	81.89
P ₄ J ₂	9.76	48.75	16.25	14.63	4.87	61.00	91.50	3.75	1.91	83.93
P ₅ J ₁	7.19	47.02	15.67	14.11	4.70	51.00	76.50	3.11	1.30	81.79
P ₅ J ₂	9.48	46.68	15.56	14.01	4.67	55.67	83.50	3.52	1.40	83.16
P ₆ J ₁	5.90	43.60	11.87	13.08	3.56	39.50	59.25	2.81	1.07	75.00
P ₆ J ₂	7.05	47.20	15.16	13.64	4.55	41.00	61.50	2.98	1.10	79.67
P ₇ J ₁	9.14	50.32	16.77	15.10	5.03	57.83	86.75	3.50	1.84	84.97
P ₇ J ₂	13.38	51.56	17.18	15.57	5.16	70.00	105.00	3.80	2.42	89.88
P ₈ J ₁	8.33	48.35	16.11	14.50	4.83	54.50	81.75	3.55	1.95	82.21
P ₈ J ₂	12.55	50.40	15.79	15.12	4.74	65.33	98.00	3.63	2.25	83.58
S.E.m.±	0.32	0.93	0.88	0.27	0.09	1.83	2.78	0.07	0.05	1.43
C.D. at (P = 0.05)	0.92	2.64	2.51	0.78	0.26	5.22	7.92	0.20	0.15	4.06
C.V. (%)	6.33	3.36	3.41	3.31	3.41	6.02	6.09	3.65	5.72	3.00

References

- Arunesh, A., Muraleedharan, A., Sha, K., Kumar, S., Joshi, J. L., Kumar P. S. and Rajan, E. B. (2020). Studies on the effect of different growing media on the growth and flowering of gerbera cv. 'Goliath'. *Plant Archives*. **20**(1), 653-657.
- Choudhary, S., Kashyap, B., Choudhary, R. C. and Jat, M. L. (2021). Effect of jeevamrut on growth and flowering of marigold. *The Pharma Innovation Journal*. **10**(8), 1037-1040.
- Deogade, A. S., Ningot, E. P., Thakare, A. A., Ingole, A. R. and Dahale, M. H. (2020). Effect of potting mixture and pot size on growth and flowering of calendula. *Journal of Pharmacognosy and Phytochemistry*. **9**(6), 1147-1151.
- Ikram, S., Habib, U. and Khalid, N. (2012). Effect of different potting media combinations on growth and vase life of tuberose (*Polianthes tuberosa* L.). *Pakistan journal of Biological Sciences* **49**(2), 121-125.
- Kiran, M. K., Jalal-ud-din, B., Waseem, K., Jilani, M. S. and Khan, M. Q. (2007). Effect of different growing media on the growth and development of dahlia (*Dahlia pinnata*) under the agro climatic condition of dera ismail khan. *Pakistan journal of Biological Sciences*. **10**(22), 4140-4143.
- Nair, S. A. and Bharathi Singh, (2015). Effect of performance of cocopeat amended media mixtures growth and flowering of chrysanthemum. *An International Quarterly Journal of Life Sciences*. **10**(1), 73-76.
- Padhiyar, B. N., Bhatt, D.S., Desai, K. D., Patel, V. H. and Chavda J. R. (2017). Influence of different potting media on growth and flowering of pot chrysanthemum var. Ajina purple. *International Journal of chemical studies*. **5**(4), 1667-1669.
- Sangwan P., Garg V. K. and Kaushik C. P. (2010). Growth and yield response of marigold to potting media containing vermicompost produced from different wastes. *The Environmentalist*. **30**(2), 123-130.
- Sardoei, A. S., Roien, A., Sadeghi, T., Shahadadi, F. and mokhatari, S. (2014). Effect of vermicompost on the growth and flowering of African marigold (*Tagetes erecta* L.). *American Eurasian Journal of Agricultural & Environment Science*. **14**(7), 631-635.
- Singh, M., Dwivedi, D. H. and Kumar, M. (2015). Efficiency of organic and biodynamic manures on growth and flowering in marigold (*Tagetes patula* L.). *Progressive Agriculture*. **15**(1), 134-137.