Value addition to *Chrysanthemum morifolium* through dry flower technology by standardizing different backdrop materials

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ABSTRACT

Pilgrims consider flowers as holy entities and hence latter are offered to their idols. Every day these offered flowers by the devotees at the religious sites are left unused and, therefore, become waste. The present study was conducted at Citrus Research Station, Dr YSR Horticultural University, Tirupati, Andhra Pradesh to utilize the worshipped flowers (Nirmalya) for value addition by making different floral images during the year 2021-2022. By standardizing the right backdrop to prepare floral images by affixing the dried petals without deteriorating the quality of the floral images, the current research was planned by choosing different backdrops. Accordingly, different backdrops utilized in the experiment were ivory sheet, canvas sheet, corrugated paper, jute mat, photo paper and handmade paper. *Chrysanthemum morifolium* (F) dried petals were used for pasting on different backdrop materials. The sensory evaluation results revealed that colour retention, shape retention, visual appearance of the floral image and overall acceptance of the floral images from chrysanthemum by the consumers were found better on photo paper followed by corrugated paper and poor on jute mat as compared to the other backdrops.

Keywords: Value addition; temple flowers; chrysanthemum; dry flowers; backdrop materials

INTRODUCTION

The flowers signify purity, strength and generosity. They inspire the entire human race to shadow the path of uprightness. The sight of beautiful fresh floras has a calm and positive effect on the beneficiary which is why they hold a special place in the history of humankind since ancient times. Pilgrims offer flowers to their idols since many consider them as divine entities. These flowers are given as offerings by worshippers in temples, however, not reused; so they are discarded. Waghmode et al (2016) reported that there is no mechanism in India for disposing of the tonnes of waste that is left behind at the religious sites of various cities amounting to roughly 3.5 to 4.0 tonnes.

As the fresh flowers are perishable, they cannot retain beauty for longer period. Hence, the dry flower technology acts as a substitute to fresh flowers. The dry flower industry in India has been around for more than 40 years owing to its high export value (Thakur et al 2020). The British first introduced dry flowers to Calcutta because of its proximity to the northeast and eastern regions where exotic and diverse blossoms could be found in nature (Bhattacharjee and De 2003).

Dried flowers are gaining knowledge with the booming floriculture industry in India. They provide an excellent opportunity to increase the income of the farmers throughout the year despite the bad climate hazards (Vidhya et al 2021).

Based on the current status, the worshipped flowers from Tirumala, Tirupati Devastnams at Tirumala and various temples under the control of TTD like Srinivasa Mangapuram, Tiruchanur and Govinda Raja Swamy were utilized.

The present study was conducted at Citrus Research Station, Dr YSR Horticultural University, Tirupati, Andhra Pradesh to utilize the worshipped flowers (Nirmalya) for value addition.

MATERIAL and METHODS

The experiment was laid out in a completely randomized block design during the year 2021-2022. In the present investigations, the chrysanthemum flowers after collection from temples were subjected to standard drying procedures like silica gel drying and wooden press drying. The dried petals were pasted on different backdrop materials viz ivory sheet (M_1), canvas sheet (M_2), corrugated paper (M_3), jute mat (M_4), photo paper (M_5) and handmade paper (M_6). The petals after pasting on the backdrop materials were framed inside the glass frame to prevent the effect of external environmental conditions on them.

The panellists by means of sensory evaluation on five-point scale ie excellent – 5, good – 4, moderate – 3, poor – 2 and very poor – 0-1 (Peryam and Pilgrim 1957) awarded scores after 15, 30, 45 and 60 days. The quality parameters like petal colour retention, shape retention, visual appearance and overall acceptance by the consumers were assessed. The data were subjected to statistical analysis adopting the standard procedure as laid down by Panse and Sukhatme (1985).

RESULTS and DISCUSSION

Data given in Table 1 on the sensory evaluation reveal that chrysanthemum petal colour was better retained and recorded high score when pasted on the photo paper backdrop material (M_5) (5.00, 4.75, 4.85 and 4.65 after 15, 30, 45 and 60 days respectively) followed by corrugated paper (4.40, 4.30, 4.00 and 3.00 after 15, 30, 45, 60 days respectively). Least score was noted in (M_4) (3.00, 2.50, 2.35 and 1.65 after 15, 30, 45, 60 days respectively).

Data in Table 2 reveal that chrysanthemum petal shape was better retained and recorded high score when pasted on the photo paper backdrop material (M_5) (5.00, 5.00, 4.50 and 4.50 after 15, 30, 45 and 60 days respectively) followed by corrugated paper (4.50, 4.25, 4.00 and 3.85 after 15, 30, 45 and 60 days respectively). Least score was noted in (M_4) (3.00, 2.50, 2.00 and 1.50 after 15, 30, 45 and 60 days respectively).

Data in Table 3 show that visual appearance of the floral image prepared with chrysanthemum petals was better retained and recorded high score when pasted on the photo paper backdrop material (M_5) (5.00, 4.85, 4.75 and 4.70 after 15, 30, 45 and 60 days respectively) followed by corrugated paper (4.00, 4.00, 3.65 and 3.50 after 15, 30, 45 and 60 days respectively). Least score was noted in (M_4) (3.00, 2.75, 2.65 and 2.45 after 15, 30, 45 and 60 days respectively).

Data given in Table 4 exhibit that overall acceptance by the consumers of the floral image prepared with chrysanthemum petals was better and recorded high score when pasted on the photo paper backdrop material (M_5) (4.85, 4.85, 4.80 and 4.75 after 15, 30, 45 and 60 days respectively) followed by corrugated paper (M_3) (4.70, 4.70, 4.60 and 4.50 after

Table 1. Petal colour retention of chrysanthemums (F) on different backdrop materials inside glass frame

Backdrop material	Petal colour retention score after days			
	15	30	45	60
Ivory sheet (M_1)	4.15	4.00	3.00	3.00
Canvas sheet (M_2)	3.90	3.65	3.50	2.85
Corrugated paper (M_3)	4.40	4.30	4.00	3.00
Jute mat (M_4)	3.00	2.50	2.25	1.65
Photo paper (M_5)	5.00	4.75	4.85	4.65
Handmade paper (M_6)	3.25	3.00	2.50	2.25
$CD_{0.05}$	0.183	0.177	0.196	0.168
SE(m)	0.059	0.057	0.063	0.054
SE(d)	0.083	0.08	0.089	0.076
CV	2.578	2.659	3.258	3.219

Table 2. Shape retention of chrysanthemum (F) petals on different backdrop materials

Backdrop material	Petal shape retention score after days			
	15	30	45	60
Ivory sheet (M_1)	4.25	4.00	3.00	3.00
Canvas sheet (M_2)	4.00	3.50	3.50	2.85
Corrugated paper (M_3)	4.50	4.25	4.00	3.85
Jute mat (M_4)	3.00	2.50	2.00	1.50
Photo paper (M_5)	5.00	5.00	4.50	4.50
Handmade paper (M_6)	3.25	3.00	2.65	2.45
$CD_{0.05}$	0.237	0.156	0.167	0.132
SE(m)	0.076	0.05	0.054	0.042
SE(d)	0.108	0.071	0.076	0.06
CV	3.3	2.342	2.832	2.432

Table 3. Visual appearance of the floral image prepared with chrysanthemum petals pasted on different backdrop materials inside glass frame

Backdrop material	Visual appearance score of the floral image after days			
	15	30	45	60
Ivory sheet (M_1)	4.00	3.85	3.65	3.50
Canvas sheet (M_2)	4.20	4.15	4.00	3.75
Corrugated paper (M_3)	4.00	4.00	3.65	3.50
Jute mat (M_4)	3.00	2.75	2.65	2.45
Photo paper (M_5)	5.00	4.85	4.75	4.70
Handmade paper (M_6)	3.25	3.00	2.85	2.50
$CD_{0.05}$	0.197	0.156	0.215	0.199
SE(m)	0.063	0.05	0.069	0.064
SE(d)	0.09	0.071	0.098	0.090
CV	2.808	2.295	3.326	3.246

Table 4. Overall acceptance by the consumers of the floral image prepared with chrysanthemum petals pasted on different backdrop materials inside glass frame

Backdrop material	Overall acceptance score after days			
	15	30	45	60
Ivory sheet (M_1)	4.45	4.45	4.25	4.00
Canvas sheet (M_2)	4.00	4.00	3.85	3.65
Corrugated paper (M_3)	4.70	4.70	4.60	4.50
Jute mat (M_4)	2.75	2.65	2.45	2.30
Photo paper (M_5)	4.85	4.85	4.80	4.75
Handmade paper (M_6)	3.85	3.85	3.65	3.50
$CD_{0.05}$	0.20	0.20	0.18	0.15
SE(m)	0.064	0.064	0.059	0.048
SE(d)	0.091	0.091	0.083	0.068
CV	2.71	2.71	2.598	2.186

15, 30, 45, 60 days respectively). The least score was noted in (M_4) (2.75, 2.65, 2.45 and 2.30 after 15, 30, 45 and 60 days respectively).

The chrysanthemum flowers' petal colour, shape, visual appearance and overall acceptance by the consumers were better when pasted and framed with photo paper backdrop material even after 60 days. Dried petal colour retention on different backdrops may have varied because of the reaction of adhesive (glue) with type of backdrop materials used. Time taken to drying of the adhesives also varied as per the quality of the backdrop material, texture and absorption capacity.

CONCLUSION

By using photo paper backdrop technique, beautiful floral images can be created with worshipped flowers. It provides alternative solution to wastage of temple flowers which can also provide employment opportunities to rural women and youth as entrepreneurs.

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