



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

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Abstract

Pilgrims consider as flowers as holy entities and hence are offered to their idols. Every day these offered flowers by the devotees in religious sites are left unused and therefore become waste. Based on the current status, present study was conducted at Dr YSRHU - Citrus Research station, Dry flower technology Value addition centre at 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 petal without deteriorating the quality of the floral images, the current research was planned by choosing different backdrops to conduct research. Accordingly, different backdrops have utilized in current experiment i.e., Ivory sheet (M₁), Canvas sheet (M₂), Corrugated paper (M₃), Jute mat (M₄), Photo paper (M₅) and Handmade paper (M₆). *Chrysanthemum morifolium* (F) dried petals were used for pasting on different backdrop materials. The sensory evaluation results revealed that chrysanthemum dried petals colour retention, shape retention, visual appearance of the floral image, and overall acceptance of the floral image by the consumer found better on Photopaper (M₅) followed by Corrugated paper (M₃) and poor on Jute mat (M₄) as compared to the other backdrops.

Keywords: value addition, temple flowers, chrysanthemum, dry flower, backdrop materials

Introduction

The flower signifies purity, strength and generosity. They inspire the entire human race to shadow the path of uprightness. The sight of beautiful fresh florals 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. There is no mechanism in India for disposing of the tonnes of waste that are left behind in the religious sites of various cities, amounting to roughly 3.5 to 4.0 tonnes. (Waghmode *et al.*, 2016) [3].

As the fresh flowers are perishable cannot retain beauty for longer period. Hence the dry flower technology act as substitute to fresh flowers. The dry flower industry in India has been around for more than 40 years, owing to its high export value. 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) [1].

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 Dr YSRHU - Citrus Research station, Dry flower technology Value addition centre at Tirupati, Andhra Pradesh to utilize the worshipped flowers (Nirmalya) for value addition

Material and Methods

The experiment was laid out in a CRD (completely randomized block design) during the year 2021-2022. In the present investigation the chrysanthemum flowers after collection from temples are subjected to standard drying procedure like silica gel drying and wooden press drying. Then the dried petals are pasted on different backdrop materials i.e., Ivory sheet (M₁), Canvas sheet (M₂), Corrugated paper (M₃), Jute mat (M₄), Photo paper (M₅) and

Handmade paper (M_6). The petals after pasted on the backdrop materials was framed inside the glass frame to prevent the effect of external environmental conditions. The panelists by means of sensory evaluation on five-point scale i.e., excellent-5, good-4, moderate-3, poor-2 and very poor 0-1 award scores after 15,30,45,60 days. The following quality parameters like petal colour retention, shape retention, visual appearance, and overall acceptance by the consumer were assessed. The data were subjected to statistical analysis adopting the standard procedure as laid down by Panse and Sukhatme (1985) ^[2].

Results and discussions

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

Backdrop materials	After 15 days	After 30 days	After 45 days	After 60 days
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
C.D.	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
C.V.	2.578	2.659	3.258	3.219

The sensory evaluation results revealed that chrysanthemum petal colour better retained and recorded high score when pasted on the photopaper backdrop material (M_5) (5.00, 4.75, 4.85, 4.65) after 15, 30, 45, 60 days respectively followed by corrugated paper (4.40, 4.30, 4.00, 3.00) after 15, 30, 45, 60 days respectively. While least score was noted in (M_4) (3.00, 2.50, 2.35, 1.65) after 15, 30, 45, 60 days respectively.

Table 2: Shape retention of chrysanthemum (F) petal pasted on different backdrop materials inside glass frame

Backdrop materials	After 15 days	After 30 days	After 45 days	After 60 days
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
C.D.	0.237	0.156	0.167	0.132
SE(m)	0.076	0.050	0.054	0.042
SE(d)	0.108	0.071	0.076	0.06
C.V.	3.300	2.342	2.832	2.432

The sensory evaluation results revealed that chrysanthemum petal shape better retained and recorded high score when pasted on the photopaper backdrop material (M_5) (5.00, 5.00, 4.00, 3.85) after 15, 30, 45, 60 days respectively followed by corrugated paper (4.50, 4.25, 4.00, 3.00) after 15, 30, 45, 60 days respectively. While least score was noted in (M_4) (3.00, 2.50, 2.00, 1.50) after 15, 30, 45, 60 days respectively.

Table 3: Visual appearance of the floral image prepared with chrysanthemum petals pasted on different backdrop materials at various days intervals inside glass frame

Backdrop materials	After 15 days	After 30 days	After 45 days	After 60 days
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
C.D.	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
C.V.	2.808	2.295	3.326	3.246

The sensory evaluation results revealed that chrysanthemum petal shape better retained and recorded high score when pasted on the photopaper backdrop material (M_5) (5.00, 4.85, 4.75, 3.50) after 15, 30, 45, 60 days respectively followed by corrugated paper (4.00, 4.00, 3.65, 3.00) after 15, 30, 45, 60 days respectively. While least score was noted in (M_4) (3.00, 2.75, 2.65, 2.45) after 15, 30, 45, 60 days respectively.

Table 4: Over all acceptance by the consumer of the floral image prepared with chrysanthemum petals pasted on different backdrop materials inside glass frame at various days intervals

Backdrop materials	After 15 days	After 30 days	After 45 days	After 60 days
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
C.D.	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
C.V.	2.71	2.71	2.598	2.186

The sensory evaluation results revealed that chrysanthemum petal shape better retained and recorded high score when pasted on the photopaper backdrop material (M₅) (4.85, 4.85, 4.80, 4.75) after 15, 30, 45, 60 days respectively followed by corrugated paper (4.70, 4.70, 4.60, 4.50) after 15, 30, 45, 60 days respectively. While least score was noted in (M₄) (2.75, 2.65, 2.45, 2.30) after 15, 30, 45, 60 days respectively.

Conclusion

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

Future line

By this technique beautiful floral images can be created with worshipped flowers it provides alternative solution to wastage of temple flowers and also provide employment opportunities to rural women and youth as smallscale industry.

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