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International Journal of Current Research
Vol. 8, Issue, 01, pp.25888-25890, January, 2016

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

ISSN: 0975-833X

RESEARCH ARTICLE

PHYSICAL ATTRIBUTES AS INFLUENCED BY VARIETY, DESICCANT AND POSITIONING FOR DRIED FLOWER SUITABILITY UNDER LABORATORY CONDITION

***Shivayya Mathapati, Hemla Naik, B., Suresh Chougala and Savita, K. H.**

Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere 577 132, University of Agricultural and Horticultural Sciences, Shimoga 577225, Karnataka

ARTICLE INFO

Article History:
Received 09th October, 2015
Received in revised form
22nd November, 2015
Accepted 17th December, 2015
Published online 31st January, 2016

Key words:

Gerbera, Position, Silica gel,
Laboratory condition.

ABSTRACT

The present study on "Physical attributes as influenced by variety, desiccant and positioning for dried flower suitability under laboratory condition" was carried out with four gerbera varieties viz., Sangria, Goliath, Impireal and Rosalin. Flowers were embedded in desiccants and kept different positions under laboratory condition. The highest dry weight (2.12 g/flower) was recorded in var. Goliath. The least dry weight (1.64 g/flower) was noticed in var. Impireal. The maximum dry weight (1.95 g/flower) was obtained with sand, whereas minimum (1.85 g/flower) was recorded in desiccant silica gel used, among the varieties studied. Positioning face down recorded maximum dry weight (1.95 g/flower), while face up noticed minimum (1.86 g/flower) (Table 1(c)).

Citation: **Shivayya Mathapati, Hemla Naik, B., Suresh Chougala and Savita, K. H. 2016.** "Physical attributes as influenced by variety, desiccant and positioning for dried flower suitability under laboratory condition", *International Journal of Current Research,* 8, (01), 25888-25890.

INTRODUCTION

Gerbera (*Gerbera jamesonii* B.) is considered as one of the nature's beautiful creations because of having excellent flowers of exquisite shape, size and bewitching colour. It is native to South Africa and Asiatic region and is popularly known as 'Transval daisy' or 'Barbeton daisy'. It is named in the honour of Traugott Gerber, a German naturalist. Gerbera is used extensively in flower arrangement and as a cut flower. The cut flowers are short lived, as they are perishable in nature. However, the concept of flower drying offers viable solution to preserve the beauty of gerbera cut flowers and their marketability. Value addition is any step taken to increase the value of a product anytime between harvesting and sale of the final product. It increases the value and appeal of any floriculture product or commodity through changes in processing or diversification. Any product can be considered value-added if it is originally grown by the farmer and increased in value "by labour and creativity." Addition value means consumers are willing to pay more than they would for a raw product.

**Corresponding author: Shivayya Mathapati,*
Department of Floriculture and Landscape Architecture, College of Horticulture, Mudigere 577 132, University of Agricultural and Horticultural sciences, Shimoga 577225, Karnataka.

MATERIALS AND METHODS

The experiment was carried out by embedding the fresh flowers of four different varieties in two positions *viz*., face up and face down in three different desiccants *viz*., sand, silica gel (60-120 mesh) and borax and allowed for drying under laboratory condition. Flowers from each of these four varieties were taken and fresh weight and diameter of all the four varieties were recorded. Later it was subjected to embedded drying. A layer of one cm of desiccant was spread over the bottom of the drying tray, small mounds of embedding mixture were made and flowers were placed upright and down position as per the treatment individually well apart. Desiccant was then gently and gradually poured all around and over the flowers so as to fill all the crevices in between the petals without disturbing the shape of flower.

Later the flowers were kept for drying under laboratory condition. The end point of drying was judged by slightly slanting the container and exposing one flower and the petals of this flower were pressed by fingers to check the loss of moisture from the flowers. Completely dried flowers were taken out by inclinating the container and slowly pouring out the media. The flowers were held upside down and slightly tapped with fingers to remove residues of media in calyx.

Table 1. Effect of desiccants and positioning on physical parameters of dried gerbera varieties

Table 1(a): Varietal response of physical parameters on dried gerbera varieties

Varieties	Fresh weight (g)	Dry weight (g)	Moisture loss (%)	Fresh flower diameter (cm)	Dry diameter (cm)	Shrinkage of flower (%)	Days taken for drying
Sangria	9.75	1.84	81.09 (64.23)*	9.84	8.88	9.68 (3.10)**	11.30
Goliath	9.81	2.12	78.39 (62.30)	9.60	8.60	10.50 (3.23)	10.96
Impireal	9.73	1.64	83.13 (65.76)	9.49	8.64	9.06 (3.00)	9.67
Rosalin	9.59	2.02	78.93 (62.68)	9.76	8.70	10.92 (3.30)	10.49
S. Em±	0.03	0.01	0.08	0.03	0.03	0.03	0.05
CD @ 1 %	NS	0.03	0.30	0.13	0.13	0.11	0.19
CV	1.32	1.84	0.52	1.53	1.64	3.92	1.98

*Figures in parentheses are arc sine transformed values.
**Figures in parentheses are square root transformed values.

Table 1(b). Effect of desiccants on physical parameters of dried gerbera varieties

Desiccants	Fresh weight (g)	Dry weight (g)	Moisture loss (%)	Fresh flower diameter (cm)	Dry flower diameter (cm)	Shrinkage of flower (%)	Days taken for drying
Sand	9.70	1.95	79.93 (63.42)*	9.67	8.84	8.62 (2.93)**	11.44
Slica gel	9.76	1.85	81.07 (64.24)	9.67	8.56	11.52 (3.39)	9.62
Borax	9.70	1.92	80.16 (63.57)	9.68	8.71	9.98 (3.15)	10.76
S. Em±	0.02	0.01	0.06	0.02	0.20	0.02	0.04
CD @ 1 %	NS	0.03	0.26	NS	0.11	NS	0.16
CV	1.32	1.84	0.52	1.53	1.64	4.07	1.98

Table 1(c): Effect of positioning on physical parameters of dried gerbera varieties

Positions	Fresh weight (g)	Dry weight (g)	Moisture loss (%)	Fresh flower diameter (cm)	Dry diameter (cm)	Shrinkage of flower (%)	Days taken for drying
Face up	9.75	1.86	80.90 (64.11)*	9.69	8.70	10.17 (3.18)**	10.32
Face down	9.69	1.95	79.87 (63.37)	9.66	8.70	9.91 (3.14)	10.9
S. Em±	0.01	0.01	0.05	0.02	0.02	0.02	0.03
CD @ 1 %	NS	0.02	NS	NS	NS	NS	0.13
CV	1.32	1.84	0.52	1.53	1.64	4.07	1.98

*Figures in parentheses are arc sine transformed values.
**Figures in parentheses are square root transformed values.

Flowers dried under Sand | Flowers dried under Silica gel | Flowers dried under Borax

The fragments of media adhering to petals were removed by brushing gently with fine camel hair brush. The data of experiment-I was analyzed by Completely Randomized Design with three factorial and replicated thrice. Parameters were recorded fresh weight, dry weight, per cent moisture loss, fresh flower diameter, dry flower diameter and shrinkage of flowers.

RESULTS

Significant difference was noticed in desiccants for dry weight of gerbera (Table 1(b)). The maximum dry weight (1.95 g/flower) was obtained with sand, whereas minimum (1.85 g/flower) was recorded in desiccant silica gel used, among the varieties studied. There was significant effect found in positioning for dry weight. Positioning face down recorded maximum dry weight (1.95 g/flower), while face up noticed minimum (1.86 g/flower) (Table 1(c)). The maximum dry weight (2.03 g/flower) was noticed in desiccant sand in face down position. Minimum (1.82 g/flower) was recorded by desiccant silica gel in facing up position, followed by (1.87 g/flower) silica gel face down position. The significant difference was observed in per cent moisture loss during dehydration of gerbera. The maximum moisture loss (83.13 %) was recorded in var. Impireal followed by (81.09 %) var. Sangria. The lowest (78.39 %) was obtained in var. Goliath (Table 1(a)). Desiccants showed significant effect for moisture

loss of gerbera. The maximum moisture loss (81.07 %) was obtained with silica gel followed by borax (80.16 %). While minimum (79.93 %) was recorded by the desiccant sand (Table 1(b)). Significant differences were observed for dried flower diameter of four varieties of gerbera (Table 1(a)) studied. The var. Sangria recorded maximum (8.88 cm) flower diameter, while the minimum (8.60 cm) was recorded in var. Goliath followed by var. Impireal (8.64 cm). Desiccants showed significant effect for dried flower diameter of gerbera and varied among desiccants sand recorded maximum dried flower diameter (8.84 cm), followed by borax (8.71 cm). Minimum (8.56 cm) was recorded by the desiccant silica gel (Table 1(b)). The least shrinkage of dry flower (9.06 %) was recorded in var. Impireal, followed by (9.68 cm) var. Goliath. The var. Rosalin noticed maximum shrinkage of flower (10.92 %).

The number of days taken for drying differed significantly among the varieties (Table 1(a)). The var. Impireal taken minimum time to dry (9.67 days), followed by var. Rosalin (10.49 days), whereas var. Sangria taken maximum (11.30 days). There was significant difference noticed in desiccants for time taken to drying (Table 1(b)). The silica gel embedded material taken least time to drying (9.62 days) followed by borax (10.76 days), whereas sand taken maximum (11.44 days). Positioning of flower was found significant difference for time taken to drying (Table 1(c)). Face up position taken minimum time to drying (10.3 days), while face down position taken maximum (10.90 days).

DISCUSSION

The highest dry weight and minimum moisture loss was recorded by var. Goliath. Whereas the least was recorded by var. Impireal. The differences in dry weight among the varieties may be attributed to the inherent genetic character associated with the varieties. Similarly Meeteren (1988) has stated that variation in dry weight of varieties is attributed to the differences in genetic characters of the varieties.

These results are in agreement with the results of Salma (2010) in *Dendrobium* orchid flowers. Significant differences were observed for fresh flower diameter, dried flower diameter and shrinkage flower of four varieties of gerbera. Among four varieties, var. Sangria recorded maximum of fresh and dry flower diameter while var. Impireal observed minimum fresh and dry flower diameter. With respect to shrinkage of flowers var. Rosalin recorded maximum shrinkage, while the least shrinkage was noticed in var. Impireal. This may be due to the inherent characters of the varieties evaluated. This result is also in line with the findings of Salma (2010) who stated that dried flower size of petal, sepal and labellum were smaller in var. Caesar Red and larger size of flowers is due to larger size of tepals (labellum, sepal and petal) in var. Sonia-17 of *Dendrobium* orchid flowers. The maximum days taken to drying was found in var. Goliath, whereas the least time taken for drying was noticed in var. Impireal. The silica gel granule is composed of a vast network of interconnecting microscopic pores, which attract and hold moisture by a phenomenon known as physical adsorption and capillary condensation. Through this phenomenon, it acts as a dehydrating agent (Anon., 1997). White *et al*. (2002) reported that silica gel is the fastest acting drying agent available till today.

REFERENCES

Anonymous, 1997, Silica gel treatment (desiccants for drying flower). *Website: www. bbc.orgj-thickmanjsilica.html.*

Meeteren, 1988, Water relations and early leaf wilting of chrysanthemum. *Acta Horticulturae*, 261: 129-135.

Salma, R., 2010, Studies on dehydration of *Dendrobium* Orchid flowers. *M.Sc.* (*Hort*.) *Thesis*, University Agricultural Sciences, Bangalore, India.

White, P., Tjia, B. and Sheehan, M. R., 2002, Drying and preserving plant materials. University of Florida Co-operative Extension Service.

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