Cut Rose Varieties Suitable for Organic Farming System in Nilgiris, Tamil Nadu

By

P. Ranchana, N. Selvaraj, M. Jawaharlal, C. Subesh Ranjith Kumar and B. Anita

ISSN 0970-4973 (Print) ISSN 2319-3077 (Online/Electronic)

J. Biol. Chem. Research Volume 31 (1) 2014 Pages No. 104-108

Journal of Biological and Chemical Research (An International Journal of Life Sciences and Chemistry)

Published by Society for Advancement of Sciences®

J. Biol. Chem. Research. Vol. 31, No. 1: 104-108 (2014) (An International Journal of Life Sciences and Chemistry) Ms 30/2/162/2013, All rights reserved ISSN 0970-4973 (Print) ISSN 2319-3077 (Online/Electronic)



http://<u>www.jbcr.in</u> jbiolchemres@gmail.com

RESEARCH PAPER

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JBCR

Revised: 19/12/2013 Accept

Received: 13/11/2013 Revised: 19/12/2013 Accepted: 21/12/2013 Cut Rose Varieties Suitable for Organic Farming System in Nilgiris, Tamil Nadu P. Ranchana, N. Selvaraj, M. Jawaharlal, C. Subesh Ranjith Kumar and B. Anita

Faculty of Horticulture, TNAU, Coimbatore-3, India

ABSTRACT

Cut rose is one of the most important cut-flower and occupies the first place in international trade. Organic farming is gaining importance in recent days and the results in superior quality produce. A study was conducted under organic farming system with ten cut rose (Rosa sp) varieties viz., Aloynica, Biyanka, Golden Gate, Grand Gala, Konfity, Noblesse, Passion, Polo, Skyline and Tropical Amazon for assessing the flower productivity and vase life under Nilgiris conditions. The varieties were grown under poly house conditions in RBD with three replications. Among the varieties studied, the highest stem length was recorded in the variety Passion followed by Grand Gala .The other growth parameters (days to sprouting, days to flowering, plant height, stem length, neck length), flower diameter, number of petals per flower, no. of cut stems/m² and vase life were also higher in the variety Passion. The investigations have lead to the identification of the variety Passion as more promising for cut flower production under organic farming system in Nilgiris condition.

Key words: Cut-Rose Varieties, Growth, Yield and Physiological Parameters.

INTRODUCTION

Floriculture is one among the promising ventures which has emerged in the recent past as flowers and flowering plants and have been a fascinating part of our life. Cut flowers like Rose, Carnation, Gerbera, Lillium and Gladiolus always have steady demand in Indian and International cut flower trade (Lemper, 1976). Among cut flowers, Rose (*Rosa spp*) has occupied a unique position both in beauty and trade. It is an ornamental plant of family Rosaceae and can be exploited for growing in beds, borders, walls, arches and screens. It may be used for planting in rockeries, pots and for cut flower production. It possess multiple uses like extraction of perfumes, vitamin- C from hips for medicinal uses and for sales as cut flowers (Khan, 1978)

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In European countries during winter season due to snow and frost the flower production has reduced and there is great demand for fresh flowers in the market throughout the year. Contrarily, India is fortunate to have all types of agro- climatic conditions and the fresh flowers can be produced throughout the year and can be exported to the international market. There is a great potential for export of rose to Europe, United States, Middle East and other parts of the world. In organic farming systems, nutrient supply is based on organic material (manures, compost, crop residues or legumes) or slow- release sources (rock phosphate). Rotten or composted manure as used in organic farming system have been shown to promote beneficial belowground processes compared to synthetic fertilizers (Mader *et al.*, 2002). Quality and quantity of organic inputs has implications for the activity of soil microorganisms and the soil food web, biological processes of nutrient transformation and the accumulation of soil organic matter.

Rose is mostly preferred by florist and consumers, as they have different colour combinations, good yield potential and long vase life. But the performance of the varieties is mainly influenced by agro- climatic factors. Since there is no comprehensive report on the performance of rose cultivars for floral and yield parameters under the Nilgiris conditions of Tamil Nadu under organic farming system, the present study was undertaken to find out the best cultivars for the region.

MATERIAL AND METHODS

The experiment was conducted at the Horticultural Research Station, Ooty from October 2008- April 2008. The place is situated at 11°24′23″ N latitude and 76°42′32″E longitude at an altitude of 2,222 m above mean sea level. The experiment was conducted on sandy loam soil with pH 6 and EC 0.4dSm⁻¹ under irrigated conditions. The varieties studied were Aloynica, Biyanka, Golden Gate, Grand Gala, Konfity, Noblesse, Passion, Polo, Skyline and Tropical Amazon. Two month old budded plants were planted at 40x15 cm spacing in a plot size of 1.5x1.0 m in three replications and ten varieties used as a treatment in randomized block design. All the cultural practices such as irrigation, weeding, hoeing, manuring, etc were done uniformly for each treatment. The data on days to sprouting, days to flowering, number of petals per flower, plant height, stem length, neck length, flower diameter, no. of cut stems/m² and vase life of the different rose cultivars were recorded. The data were recorded on five plants and the mean values of the recorded data were statistically analysed.

RESULTS AND DISCUSSION

Maximum number of days to sprouting (46.17 days) was taken by Noblesse and which was closely followed by Skyline which took 45.87 days to sprout the buds. The minimum duration to bud sprouting (32.83 days) was taken by Passion. The variation in days to sprouting can be attributed to varietal characteristics. Similar studies by Raheela Tabassum *et al.* (2002) showed variation among varieties for days to sprouting and this is in contrary with the results of Khattak (1991), might be due to the age of the plant and temperature. All the varieties produced flowers within the range of 36.33- 46.65 days (Table 1).

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Varieties	Days to sprouting	Days to flowering	Number of petals/ flower	Plant height (cm)	Stem length (cm)	Neck Length (cm)	Flower diameter (cm)
Aloynica	35.32	39.35	37.63	65.66	52.63	5.67	4.48
Biyanka	37.33	42.35	35.55	68.57	57.83	6.52	4.32
Golden Gate	39.67	43.85	41.30	78.71	55.15	7.81	4.41
Grand Gala	34.67	37.85	45.38	98.75	68.75	9.56	6.25
Konfity	43.82	44.45	38.90	93.47	63.47	5.31	4.60
Noblesse	46.17	46.65	38.98	85.09	58.70	6.72	4.41
Passion	32.82	36.35	49.48	115.59	85.59	11.56	6.66
Polo	36.83	41.75	41.55	88.88	58.88	8.71	5.33
Skyline	45.87	45.95	40.88	77.83	58.60	9.47	5.26
Tropical Amazon	36.34	40.25	35.39	82.63	55.66	8.62	4.32
CD at 5%	1.63	2.66	1.24	6.88	0.27	0.09	0.1

 Table 1. Data regarding growth and floral parameters of different rose varieties for cut flower production.

The most flower producing varieties was Noblesse, it took 46.65 days to flowering followed by Skyline (45.95 days) and the shortest time (36.35 days) to flowering was taken by Passion. Almost similar results have been reported by Khattak *et al.* (1995) and Raheela Tabassum *et al* (2002). This may be due to different genetic makeup, which might be further modified by the prevailing environmental conditions during the field trail.

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Varieties	No. of cut stems/ sq.m.	Vase life (days)					
Aloynica	56.35	11.68					
Biyanka	60.98	12.00					
Golden Gate	53.96	12.33					
Grand Gala	75.93	14.34					
Konfity	57.80	12.33					
Noblesse	72.00	11.33					
Passion	87.83	15.34					
Polo	62.82	12.68					
Skyline	69.65	13.34					
Tropical Amazon	65.04	11.67					
CD at 5%	0.36	1.01					

Table 2. Data regarding yield parameters and vase life of different rose varieties for cut
flower production.

The highly significant data related to the number of petals per flower showed that maximum of 49.48 petals were recorded in Passion (Table 1).

The minimum of 35.39 petals was noted in Tropical Amazon followed by Biyanka and Aloynica with 35.55 and 37.63 petals per flower. These observations are in conformity with the earlier findings of Preethi (1990).

The significant variation with respect to plant height was observed. From the table 1 it is clear that maximum value was in Passion (115.59 cm) and minimum in variety Aloynica (65.66 cm) while varieties Passion, Grand Gala, Konfity, and Polo were on par with each other. The variation in plant height among various rose varieties may be due to genetic variability, which was tested under this trail. Another propable reason for variation in plant height may be due to the effect of environmental conditions prevailing during field trail. Similar results were elicited by Malik *et al.*, 1984, Rathore *et al.*, 1985, Vijayakumar *et al.*, 1988 and Hakeen (1998) in ornamental crops.

Maximum stem length was noticed in Passion (85.59cm) followed by Grand Gala (68.75 cm) and the variety Aloynica recorded the least stem length of 52.63 cm. These observations are in conformity with the earlier findings of Khattak *et al.* (1995) and Raheela Tabassum *et al* (2002). This variation may be due to genetic variability among the different varieties which may be coupled with environmental conditions prevailing during the experimentation.

The significant variation with respect to neck length was observed. From the table 1 it is clear that the maximum value was in Passion (11.56 cm) which is followed by Grand Gala (9.56 cm) and the variety Konfity recorded the least neck length of 5.31 cm. This variation may be attributed because of varied genetic makeup of different varieties along with prevailing environmental conditions.

The maximum flower diameter was recorded in the variety Passion (6.66 cm) while minimum in the varieties Biyanka and Tropical Amazon (4.32 cm). Similar findings were obtained by Preethi (1990). It may be concluded that variation in diameter of flower is due to the genetic makeup coupled with environmental conditions prevailing during the experimentation.

The highly significant data related to the number of cut stems per square metre showed that maximum of 87.83 cut stems was recorded in the variety Passion and the minimum in Golden Gate (53.96 cut stems/sq.m.). The variation in number of cut stems per square metre among various rose varieties may be due to genetic variability, which was tested under this trail. Another propable reason for variation in number of cut stems per square metre may be due to the effect of environmental conditions prevailing during field trail. These observations are in conformity with the earlier findings of Preethi (1990).

Maximum vase life of 15.34 days was noted in Passion, which is followed by Grand Gala (14.34 days). Noblesse reported minimum vase life of 11.33 days. The results reported by Bhattacharjee (1994) also lend support to these findings. It may be concluded that variation in vase life of flower is due to the genetic makeup coupled with environmental conditions prevailing during the experimentation.

ACKNOWLEDGEMENTS

We offer our thanks to Tamil Nadu Agricultural University, Coimbatore for providing the facilities.

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Corresponding author: Dr. P. Ranchana, Faculty of Horticulture, TNAU, Coimbatore-3, India **Email:** <u>ranchanahorti@gmail.com</u>