

Assessment of Qualitative and Quantitative Flower Quality Parameters of Certain Commercial Jasmine Varieties during Flowering Season

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ABSTRACT

Qualitative and quantitative flower quality parameters of jasmine are important in commercial as well as export point of view. Jasmine has the unique fragrance containing white flowers which is a highly valued ornamental plant in tropical and subtropical regions of the world. Many varieties of the commercial *Jasminum* species are cultivated in India. Present study was done over the seven commercially cultivated varieties of South India region, i.e., Ramanathapuram Gundumalli, Madanban, Ramabanam, Single Mohra, CO.1 Mullai, Parimullai and CO.1 Pitchi. There is very less or no scientific evidence available on the performance of flowers during flowering season. In this study, highest flower bud diameter (0.90 cm) recorded in Single Mohra where as highest flower bud length recorded in CO. 1 Pitchi (3.85 cm). Highest hundred flower bud weight (28.60 g) and single flower bud weight (0.275 g) were observed in Madanban. It is important to study the qualitative and quantitative flower quality parameters of jasmine to gain profit in the flower export business as well as in value addition businesses.

Key words: *Jasminum* spp., Commercial varieties, Quality parameters, Flowering season.

INTRODUCTION

Jasmine (*Jasminum* spp.) is one of the traditional and oldest cultivated flower crop. It belongs to the family Oleaceae and it is a native plant of South and Southeast Asia. A large number of species are distributed around the regions comprising India, China and Malaysia¹. For the past several centuries, the gardens of Central Asia, Afghanistan, Iran, Nepal, Indonesia, Malaysia, France and many

other tropical and subtropical countries are adorned with jasmine plants. India is an important center of origin for many of the *Jasminum* species. Flowers are one of the beautiful creations of god⁴. Description, distribution and illustrations of 11 jasmine species along with *Jasminum grandiflorum*, *Jasminum sambac* and a few other species were reported by Kirtikar and Basu⁸.

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The attractive foliage and unique fragrant white flowers make it a highly valued cultivated crop in India, Thailand, China, Sri Lanka and the Philippines. More than 2,000 species are known among which 40 species are identified in India and 20 species are found in South India². Commercial cultivation is confined to mainly four species, viz., *Jasminum sambac*, *Jasminum auriculatum* and *Jasminum grandiflorum* which are largely cultivated and *J. multiflorum* which is cultivated to a small extent. In India, South India occupy most of the jasmine cultivated areas. Jasmine flowers are mainly exported to countries like Singapore, Malaysia, Japan, UK, USA, Eastern European and Gulf countries. During pre flowering season the export is hampered due to shortage in flower supply. So, it is important to study the basic qualitative and quantitative flower quality parameters to identify the best suitable variety for growing in pre flowering season to maintain the uninterrupted supply chain to exporting countries.

MATERIAL AND METHODS

Fresh jasmine flowers of Ramanathapuram Gundumalli, Madanban, Ramabanam, Single Mohra, CO.1 Mullai, Parimullai and CO.1 Pitchi varieties were collected in the early morning hours from the experimental plots present in Botanic Garden, Department of Department of Floriculture and Landscaping, Tamilnadu Agricultural University, Coimbatore during flowering season from 2012 to 2013. Different species have different flowering periods. February to April, April to May and March to June are flowering seasons for *J. sambac*, *J. auriculatum* and *J. grandiflorum* respectively. Flower bud diameter (cm), open flower diameter (cm), flower bud length (cm) and corolla tube length (cm) were noted for assessment of qualitative quality parameters of flowers where as single flower bud weight (g) and hundred flower bud weight (g) were noted for assessment of quantitative quality parameters. The statistical design adopted was RBD. The CD values were worked out for five percent (0.05) probability

and the results were interpreted. Statistical analysis was done by AGRES software package.

RESULTS AND DISCUSSION

Flower bud diameter, open flower diameter, flower bud length and corolla tube length are important qualitative parameters for jasmine export business. Commercial acceptability of jasmine flowers are depended over these quality parameters⁷. Highest flower bud diameter (0.90 cm) noticed in Sigle Mohra variety where as lowest (0.41 cm) noticed in Parimullai. Highest open flower diameter (5.80 cm) recorded in Ramabanam variety of *J. sambac* and lowest open flower diameter (2.05 cm) noted in Parimullai variety of *J. auriculatum* (Table 1). CO.1 Pitchi variety of *J. grandiflorum* had highest Flower bud length (3.85 cm) and Corolla tube length (1.98 cm). Lowest flower bud length (1.50 cm) and lowest corolla tube length (0.74 cm) recorded in Single Mohra (Table 1). Variations were observed among the varieties in qualitative flower quality parameters. This variation may be due to the influence of genetic makeup of the genotypes and environmental modulations¹².

Total flower bud yield and hundred flower bud weight are mainly dependent on the individual flower bud weight. In the present study, variation was observed in hundred flower bud weight (g) under field conditions. Highest hundred flower bud weight (28.60 g) was recorded in Madanban and the lowest (6.80 g) in Parimullai (Figure 1, Table 1). Highest value for hundred flower bud weight of 5.3g to 9g in first year and 5.2g to 8.9g in second year in 18 hybrid progenies of different crosses of *J. auriculatum* were reported by Chezhiyan *et al*³. The mean individual flower weight is yet another yield determining component. Weight of individual flowers also varied significantly among the genotypes with the highest in Madanaban (0.275 g) and the lowest (0.063 g) in Parimullai (Table 1). The individual flower bud weight had direct correlation with hundred flower bud weight. These variations in the

yield may be due to the genetic make up of the varieties and also may be the effect of agroclimatic conditions. Similar observations have also been made earlier by Raman *et al.*¹³ in varieties of the four commercial species namely *J. sambac*, *J. auriculatum*, *J. grandiflorum* and *J. pubescense* (Syn: *J. multiflorum*). Further evidence comes from the

reports of Seetharamu *et al.*¹⁰ who observed a similar trend in the four commercial species of jasmine. The varietal yield differences may be due to the additive gene effect⁶. Similar observations have also been recorded in other flower crops namely, marigold¹¹, and chrysanthemum⁹.

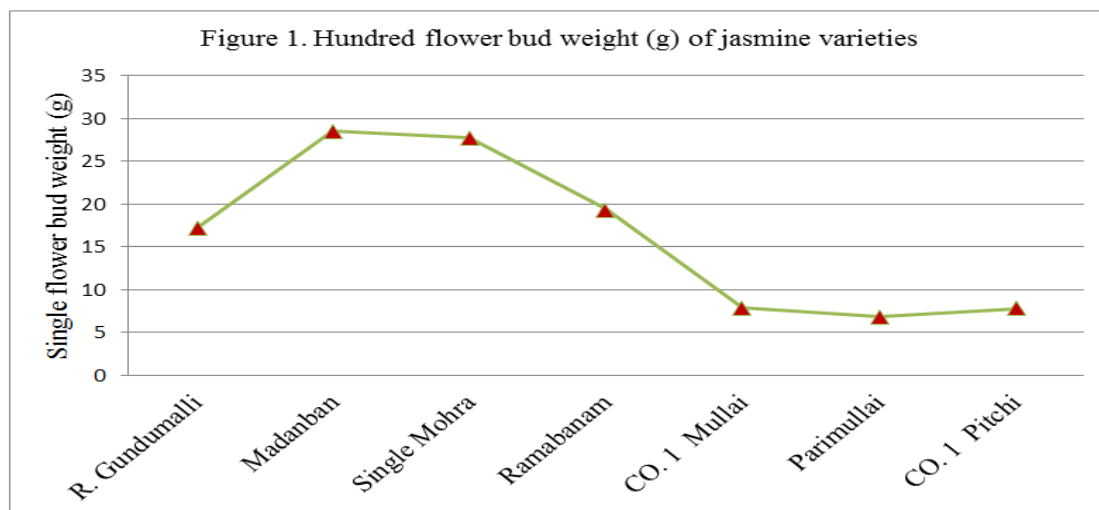


Table 1: Assessment of qualitative and quantitative flower quality parameters of certain commercial jasmine varieties during flowering season

S. No.	Varieties	Flower bud diameter (cm)	Open flower diameter (cm)	Flower bud length (cm)	Corolla tube length (cm)	Single flower bud weight (g)	Hundred flower bud weight (g)
1.	Ramanathapuram Gundumalli (<i>Jasminum sambac</i>)	0.67	2.37	2.25	1.26	0.201	17.17
2.	Madanban (<i>Jasminum sambac</i>)	0.78	5.32	3.30	1.26	0.275	28.60
3.	Single Mohra (<i>Jasminum sambac</i>)	0.90	2.89	1.50	0.74	0.268	27.80
4.	Ramabanam (<i>Jasminum sambac</i>)	0.86	5.80	2.82	1.53	0.215	19.40
5.	CO.1 Mullai (<i>Jasminum auriculatum</i>)	0.45	2.20	2.55	1.70	0.076	7.82
6.	Parimullai (<i>Jasminum auriculatum</i>)	0.41	2.05	2.52	1.42	0.063	6.80
7.	CO.1 Pitchi (<i>Jasminum grandiflorum</i>)	0.51	4.23	3.85	1.98	0.079	7.80
	SEd	0.018	0.115	0.056	0.033	0.008	0.693
	CD (P=0.05)	0.039	0.250	0.123	0.073	0.019	1.510

CONCLUSION

Seasonal variation in the flower yield was reported earlier by Guenther⁵ according to whom, weather conditions play an important role in the flower production of jasmine. Warm weather and ample sunshine produce a much larger flower crop and flowers with

more perfume than cool and rainy weather crop. In the present study qualitative and quantitative flower quality parameters of certain commercial jasmine varieties during flowering season were studied which is going to help further in concentrating in value addition businesses during this season to check

the wastage of surplus flowers. Results of the present study can help further to identify the potential variety for growing in the flowering season for gaining maximum profit. As the flowering periods are different for different species, the present study will help to maintain a uninterrupted supply chain cycle for export business.

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