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

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ABSTRACT

Flower quality parameters of jasmine are important in commercial as well as export point of view. Jasmine has the unique fragrance cointaining white flowers which is a highly valued ornamental plant for home gardens and commercial cultivation. Many varieties of the commercial Jasminum species are cultivated in Tamil Nadu as well as in India. Some of the commercially cultivated varieties are 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 pre flowering season. Highest flower bud diameter (0.85 cm) recorded in Single Mohra where as highest flower bud length recorded in CO. 1 Pitchi (3.65 cm). Highest hundred flower bud weight (26.38 g) and single flower bud weight (0.259 g) were recorded in Madanban. It is important to study the qualitative and quantitative flower quality parameters to maintain the uninterrupted export supply chain during pre flowering period.

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

INTRODUCTION

Jasmine (*Jasminum* spp.) one of the oldest cultivated and traditionally important flower crop belongs to the family Oleaceae and it is a native plant of South and Southeast Asia. It is mostly found in tropical and subtropical countries of the world but a large number of species are distributed around the regions comprising India, China and Malaysia[1]. 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 jasmines. Flowers are one of the wonderful creations of god[3]. 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 India[2].

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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 hamphered 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.

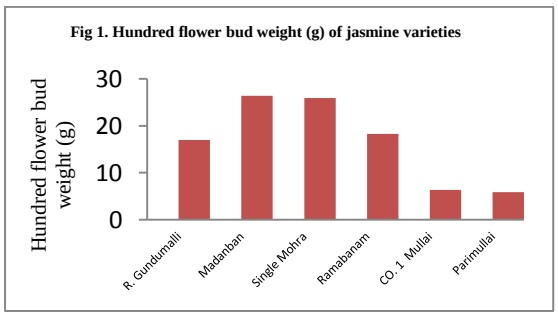
MATERIAL AND METHODS

Fresh jasmine flowers 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 pre flowering season from 2012 to 2013. Different species have different pre flowering periods. November to January, January to March and December to February are pre flowering seasons for *J. sambac*, *J. auriculatum* and *J. grandiflorum* respectfully. Flower bud diameter (cm), open flower diameter (cm), flower bud length (cm) and corolla tube length (cm) were observed 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 CD values were worked out for five percent (0.05) probability and the results were interpreted. Statistical analysis was done by using AGRES software package. The RBD was adopted as statistical design.

RESULTS AND DISCUSSION

Flower bud diameter, open flower diameter, flower bud length and corolla tube length are important qualitative parameters for jasmine. Commercial acceptability of jasmine flowers are depended over these quality parameters[6]. Highest flower bud diameter (0.85 cm) noticed in Sigle Mohra variety where as highest open flower diameter (5.71 cm) noticed in Ramabanam variety of *J. sambac*. Lowest flower bud diameter (0.34 cm) and open flower diameter (1.92) noted in Parimullai variety of *J. auriculatum* (Table 1). CO.1 Pitchi variety of *J. grandiflorum* had highest Flower bud length (3.65 cm) and Corolla tube length (1.72 cm) (Table 1). In the present study, variations in qualitative flower quality parameters were observed among the varieties. This may be due to their genetic make up and also may be due to the effect of agroclimatic conditions[8].

In the present study, variation was observed in hundred flower bud weight (g) under field conditions. Highest hundred flower bud weight was recorded in Madanban and the lowest in Parimullai (Table 1, Fig 1). Weight of individual flowers also varied significantly among the genotypes with the highest in Madanaban and the lowest in Parimullai (Table 1, Fig 2). Hundred flower bud weight is correlated with single flower bud weight. Similar results were obtained earlier by Seetharamu *et al.*[7] in these three species of jasmine. The varietal differences for yield potential may also be attributed to additive gene effect[5]. Similar observations have also been recorded in marigold[8].



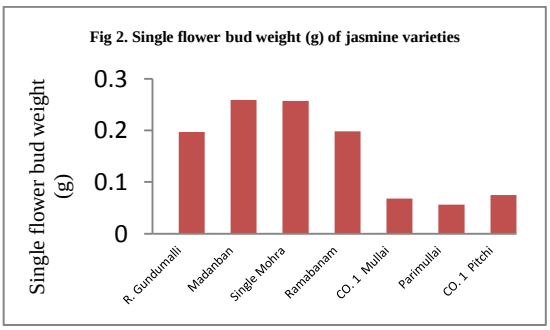


Table 1: Assessment of qualitative and quantitative flower quality parameters of certain commercial jasmine varieties during pre flowering season

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 *(Jasminum sambac)*	0.65	2.18	2.09	1.01	0.197	16.99
2.	Madanban *(Jasminum sambac)*	0.74	5.22	3.15	1.12	0.259	26.38
3.	Single Mohra *(Jasminum sambac)*	0.85	2.78	1.41	0.63	0.257	25.90
4.	Ramabanam *(Jasminum sambac)*	0.80	5.71	2.78	1.38	0.198	18.30
5.	CO.1 Mullai *(Jasminum auriculatum)*	0.37	2.01	2.43	1.43	0.068	6.36
6.	Parimullai *(Jasminum auriculatum)*	0.34	1.92	2.47	1.36	0.056	5.88
7.	CO.1 Pitchi *(Jasminum grandiflorum)*	0.42	4.05	3.65	1.72	0.075	7.00
	SEd CD (P=0.05)	0.018 0.041	0.116 0.252	0.052 0.114	0.028 0.061	0.008 0.017	0.684 1.491

CONCLUSION

Seasonal variation in the flower yield was reported earlier by Guenther[4] according to whom, weather conditions play an important role in the flower production of jasmine, warm weather and ample sunshine producing a much larger flower crop and flowers with more perfume than cool and rainy weather. In the present study qualitative and quantitative flower quality parameters of certain commercial jasmine varieties during pre flowering season were studied which is going to help further in improving these parameters during this season. If we can able to modify the growing conditions as like in flowering season, it may subsequently improve the qualitative and quantitative flower quality parameters. Results of the present study helped us to identify the potential variety for the pre season growing. As the pre flowering periods are different for different species, this may help to maintain a uninterrupted supply chain cycle for export market.

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