

## Short Communication

# Correlation Studies in *Rosa* Species Under Faisalabad (Pakistan) Conditions

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## ABSTRACT

A study was conducted to estimate correlation coefficient in four *Rosa* species i.e. *Rosa centifolia*, *Rosa damascena*, *Rosa chinensis* and *Rosa bourboniana* under Faisalabad climatic condition, Pakistan. Correlation between plant height and other morphological characters was significant but negative with number of flower per plant, and dry flower weight. Correlation between fresh flower weight and other morphological characters was significant and positive with number of flower per plant, and dry flower weight. Correlation between number of flower per plant and other morphological characters showed significant and positive with fresh flower weight and dry flower weight. Correlation coefficient between number of branches and other morphological characters showed significant and negative with number of flower per plant, and dry flower weight.

**Key Words:** *Rosa*; Correlation; *Rosa centifolia*; *Rosa damascena*; *Rosa chinensis*; *Rosa bourboniana*; Pakistan

## INTRODUCTION

Rose, the queen of flowers, belongs to family Rosaceae and genus *Rosa* contains more than 1400 cultivars and 150 species (Gault & Syngé, 1971). Roses were grown since the immemorial time and they are indeed among the ancient ornaments of gardens. It has been found from the fossil remains that primitive types of rose existed since 35 million years ago, long before the arrival of man upon the Earth. As man developed interest beyond the bare necessities of life, his simple love of beauty must have drawn his attention to the rose. In times, it became an object of religious significance, and thousands of years before Christ, stylized representations were made, which pointed to an infinity order past, a past beyond research (Thomson, 1959).

Being an important garden crop, a study was planned to estimate repeatability and correlation among four *Rosa* species under Faisalabad agro climatic conditions. The ideal temperature for rose production is 23°C to 32°C during the day and 15°C to 23°C at night. The ideal humidity level is 75 to 80%. The climate of Faisalabad is subtropical and high temperature during summer is the characteristics of this city. Under these conditions various parameters relating to rose growth and production like plant height, number of branches per plant and number of flower per plant was studied.

Availability of information on correlation is important for any breeding programmes, aiming to improve a vegetatively propagated crop through selection and breeding. The information on correlation among various

traits in *Rosa* species provides the basis for selection and the synthesis of improved varieties.

The present studies aim at the estimation of correlation in *Rosa* species populations for selecting desirable combination of plant characteristics and flower attributes for the synthesis of varieties with desirable characteristics.

## MATERIALS AND METHODS

The experiment was conducted in *Rosa* Project Area, Institute of Horticultural Sciences University of Agriculture Faisalabad during the year 2003-2004. For the present study four *Rosa* species i.e. *Rosa centifolia*, *Rosa damascena*, *Rosa chinensis* and *Rosa bourboniana* were selected for comparative study of correlation under Faisalabad agro-climatic conditions. The Experiment was conducted on two-years-old plants whose pruning was done in February 2004. The plants were selected randomly in the area. Data are collected on various vegetative and floral characteristics during March 2004 to May 2004. Thirty plants of each species were randomly selected. The data are collected on the following parameters.

The height of plant was measured from ground level to the tip of the largest branch with the help of a measuring rod. Actual number of branches per plant was counted and data were recorded. Mature flowers were picked regularly from each of the selected plants at two-week intervals and those were counted.

The full bloom fresh flowers per plant were picked and they were labeled. Then the flowers were weighed. After recording the fresh weight of flowers, the labeled

flowers were sun dried till constant for dry weight estimation.

Data on different climatic factors, i.e. temperature, relative humidity, wind speed etc. were collected from the meteorological observatory, department of Crop Physiology, University of Agriculture Faisalabad. Data were statistically analyzed to determine the extent of correlation following Steel and Torrie (1984).

## RESULTS AND DISCUSSION

The correlation between plant height and fresh flower weight indicated that correlation value was negative and non-significant, therefore showing a weak and negative correlation between these two characters. The results regarding correlation coefficient between plant height and dry flower weight was also negative and non-significant. It showed a weak and negative association between these two characters. Correlation value of plant height and number of flower per plant were negative but highly significant (Table I). It showed negative and strong correlation and high association between plant height and number of flower per

flower per plant were positive and highly significant (Table I). The correlation between dry flower weight and number of branches indicated a negative and significant association (Table I). It is clear from results that it is statistically negative but high association was found between these two characters.

Correlation value of number of flower per plant and plant height were negative but highly significant (Table I). It showed negative and strong correlation and high association between number of flower per plant and plant height. Correlation value of number of flower per plant and fresh flower weight were positive and highly significant. It showed positive and high association between number of flower per plant and fresh flower weight. Correlation value of number of flower per plant and dry flower weight were positive and highly significant (Table I). It showed positive and high association between number of flower per plant and dry flower weight. The correlation between number of flower per plant and number of branches were calculated and results are shown in Table I. It indicates a negative and significant association. It is clear from the results that a high but negative association was found between these two

**Table I. Correlation between different morphological characteristics in *Rosa* species**

	PH	FFW	DFW	NF	NB
Plant Height (PH)	1.00	-0.040	-0.144(**)	-0.364(**)	0.168(**)
Fresh Flower weight(FFW)	-0.040	1.00	0.067(*)	0.151(**)	-0.066(*)
Dry Flower weight (DFW)	-0.144(**)	0.067(*)	1.00	0.163(**)	-0.126(**)
Number of Flower/plant (NF)	-0.364(**)	0.151(**)	0.163(**)	1.00	-0.112(**)
Number of Branches/plant(NB)	0.168(**)	-0.066(*)	-0.126(**)	-0.112(**)	1.00

\*\* Correlation is significant at the 0.01 level (1-tailed); \* Correlation is significant at the 0.05 level (1-tailed).

plant. The correlation between plant height and number of branches was positive and significant. It appears from the existing value that with the increase in plant height there is corresponding increase in number of branches.

The correlation between fresh flower weight and plant height indicated that correlation value was negative and non-significant. It showed a weak and negative correlation between these two characters. The correlation between fresh flower weight and dry flower weight was positive and significant. It appears from the existing value that with the increase in fresh flower weight there is corresponding increase in dry flower weight and vice versa. Correlation value of fresh flower weight and number of flower per plant were positive and highly significant. It showed positive and high association between fresh flower weight and number of flower per plant. The correlation between fresh flower weight and number of branches was negative and significant.

The correlation between dry flower weight and plant height were calculated (Table I), which indicate that correlation value was negative and significant. It showed a weak and negative correlation high association between these two characters. The correlation between dry flower weight and fresh flower weight was positive and significant. Correlation value of dry flower weight and number of

characters.

The correlation between number of branches and plant height was positive and significant. The correlation between number of branches and fresh flower weight were calculated (Table I). It indicates a negative and significant association. It is clear from results that a high but negative association was found between these two characters. The correlation between dry flower weight and number of branches indicates a negative and significant association. It is clear from results that high but negative association was found between these two characters. The correlation between number of branches and number of flower per plant was negative and significant.

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