

## Studies on character association in bitter gourd (*Momordica charantia* L.) under salt stress

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### ABSTRACT

Twenty genotypes of bitter gourd (*Momordica charantia* L.) were evaluated for fourteen biometric traits under saline sodic soil to find out the association of yield related traits with yield and the inter correlation among themselves. The trait viz., number of female flowers per vine, number of fruits per vine, vine length and fruit weight had recorded significant positive association with yield. The maximum positive inter correlation was observed between number of female flowers per vine and number of fruits per vine. Sex ratio of male to female flower has shown significant negative association with yield and it had recorded the maximum negative inter correlation with the number of female flowers per vine. The path coefficient analysis also revealed the highest positive direct effect on yield by number of fruits per vine, while the highest negative direct effect on yield was recorded by number of female flowers per vine. The number of female flowers produced per vine had exerted the maximum indirect positive effect on yield through number of fruits per vine, indicating that the number of fruits per vine and number of female flowers produced per vine could be regarded as primary yield determinants in bitter gourd under salt stress and exercising selection on these traits would throw desired results.

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**B**itter gourd (*Momordica charantia* L.) is an important cucurbitaceous vegetable grown all over India. Although many varieties and hybrids with higher yields had been developed, the potential could be harnessed only under favourable edaphic conditions. The ever increasing demand for vegetables and shrinking land and other agricultural resources necessitates cultivation of crops even under marginal soils. Salinity of soil and water being the major global concern, identifying genotypes for salinity assumes significance. A rational choice of characters on which selection is to be exercised for higher yields requires an understanding on the association of characters with yield and association among themselves. Further path coefficient analysis is an efficient tool to elucidate the direct and indirect effect of each character towards yield. Hence, the present investigation was taken up to study the association among yield and its component characters under salt stress in bitter gourd.

### MATERIALS AND METHODS

The present investigation was taken up involving 20 genotypes of bitter gourd during 2008 in a Randomised Block Design with 3 replications. The soil of the experimental plot was saline sodic, with the saturation extract having a pH of 8.9, EC 4.78 dSm<sup>-1</sup> and ESP 20.21 per cent. Observations were recorded on fourteen biometric traits viz., days to first male flower appearance,

days to first female flower appearance, node of first male flower appearance, node of first female flower appearance, number of male flowers per vine, number of female flowers per vine, sex ratio (M/F), fruit length (cm), fruit girth (cm), individual fruit weight (g), vine length (m), number of primary branches per vine, number of fruits per vine and yield of fruits per vine (g). The correlation coefficient was computed as suggested by Panse and Sukathme (1967). Path coefficient analysis was carried out using the formula of Dewey and Lu (1959).

### RESULTS AND DISCUSSION

The estimation of correlation coefficient between yield and other characters and inter correlation among various yield contributing traits are presented in Table 1.

The highest positive significant association (0.981\*\*) was observed between number of female flowers per vine and number of fruits per vine. The association between days to first male flower appearance and days to first female flower appearance (0.839\*\*), node of first male flower appearance and node of first female flower appearance (0.838\*\*), days to first male flower appearance and node of first female flower appearance (0.819\*\*) and number of fruits per vine and yield of fruits per vine (0.793\*\*) were also found to be positive and significant.

The characters viz., number of fruits per vine