



## Screening of genotypes through correlation and path co-efficient analysis in African marigold (*Tagetes erecta* L.)

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### ABSTRACT

The present study was carried out during 2008 at the experimental field of the Department of Horticulture, Faculty of Agriculture, Annamalai University, Annamalai Nagar, Tamil Nadu. To find out the association between various quantitative traits, an experiment was conducted in Randomized Block Design replicated thrice with 30 germplasm of marigold collected from different southern parts of Tamil Nadu. Observations were recorded for nine characters. Obviously the genotypic correlation coefficients were generally higher than the corresponding phenotypic correlation coefficients. The flower yield per plant exhibited highly significant and positive correlation with number of flowers per plant, number of laterals per plant, flower head size, stem girth, plant height, xanthophyll content and dry matter production. On other hand the trait, days to first flowering exhibited highly significant and positive correlation with flower yield per plant. Among the characters studied the number of flowers per plant had maximum positive direct effect towards flower yield per plant, where as number of laterals per plant showed maximum indirect effect via number of flowers per plant.

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African marigold (*Tagetes erecta* L.) is one of the most commonly grown flower plant belonging to the family Asteraceae. The present area under cultivation is around 921 ha with a production of 13815 tones in Tamil Nadu. It accounts for more than half of the nation's loose flower production. Due to its wide adaptability, easy cultural practices, short duration with attractive colours, size, shape and good keeping quality, attract the attention of the growers in India.

Carotenoid in marigold has emerged as a poultry mix and food colourant. Lutin, a major component of marigold carotenoid is having therapeutic values. To start with breeding approaches for improvement of carotenoids, the assessment of variability is a must. Also, considerable influence of morphological and yield characters on total carotenoid yield has been proved (Sreekala *et al.*, 2002). The information about the correlation among important characters and their relative contribution towards yield components greatly help the breeder in selecting desirable genotype. Knowledge on the interrelationships between various characters is essential for formulating successful breeding programme. Hence, the present study was

undertaken to estimate the genotypic and phenotypic correlation between various characters and their direct and indirect effects on flower yield per plant in marigold.

### MATERIALS AND METHODS

To study the association between various quantitative traits in African marigold genotypes, the experiment was conducted in the experimental field in Department of Horticulture, Faculty of Agriculture, Annamalai University, Annamalai Nagar during 2008. The experiment was conducted in Randomized Block Design replicated thrice with 30 germplasm collected from different location of Tamil Nadu. Then the seeds of each genotypes were sown separately according to the collection and the nursery beds were maintained systematically upto the transplanting stage. Healthy and uniform seedlings of 30 days old seedlings were transplanted with a spacing of 40x30 cm of line planting in a plot size of 2m x 2m by accommodating 30 plants per plot. For recording various observations, six plants in each experimental plot were randomly selected. The observations were recorded for nine yield attributing characters namely, plant height, stem