Research Paper

Genetic variability in African marigold (*Tagetes erecta* L.)

R. KAVITHA AND A. ANBURANI

See end of the article for authors' affiliations

Correspondence to :

R. KAVITHA
Department of Horticulture, Faculty of Agriculture, Annamalai University, ANNAMALAI NAGAR (T.N.) INDIA

ABSTRACT

To assess the genetic variability present in 30 germplasm collected from different parts of Tamil Nadu, the experiment was conducted in a Randomized Block Design with three replications in a plot size of 2 x 2m². The plants were transplanted at spacing of 40 cm row to row and with in row 30 cm apart. The coefficients of variation both at genotypic and phenotypic levels were maximum for number of flowers per plant, while minimum for dry matter production. Heritability estimates for all the characters were generally very high. High heritability along with high genetic advance as per cent of mean was observed for number of flowers per plant. Flower yield per plant and number of laterals per plant was due to additive gene effects thus suggesting that selection for these characters would be very effective.

African marigold (*Tagetes erecta* L.) of family Asteraceae is one of the most popular flowering plants and grown in commercial scale in our country. It is grown mostly for loose flowers and are used in making garland, veni and for floral decoration. It is native of central and South America especially Mexico. In India, about two third of total area under floriculture are devoted is production of traditional flowers like marigold, jasmine, chrysanthemum, rose, aster and tuberose. Among them marigold occupies the top most position in loose flower production. The area under commercial cultivation of marigold is substantially increasing due to its multipurpose uses in social and religious function in essential oil industries for oil and pigment extraction and in plant protection to control nematodes.

These wide uses depend on the variable performance of different genotypes. The sources of any breeding programme for developing suitable varieties depends largely on the availability of genetic variability in a given species. Heritability estimates give a measure of transmission of characters from one generation to the other as consistency in the performance of the selection depends on the heritable portion of the variability, thus enable the plant breeder in isolating the elite selection in the crop. Since, most of the characters influence yield and are polygenic, it is essential for plant breeders to estimate the type of variation available in the germplasam.

Variability results due to differences either in the genetic constitution of the individuals of a population or in the environment in which they are grown. Selection is effective when there is genetic variability (Sing and Narayanan, 2000). Hence, an insight into the magnitude of genetic variability present in a population is very important for starting a judicious attempt in the present study.

MATERIALS AND METHODS

From the existing germplasm of African marigold (*Tagetes erecta* L.) 30 genotypes were selected to estimate the genetic variability. The present study was carried out in the Department of Horticulture, Faculty of Agriculture, Annamalai University, Annamalai Nagar. 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 were transplanted with a spacing of 40 x 30 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 selected plants were tagged for taking observations on various growth and yield parameters *viz.,* plant height, stem girth, number of laterals per plant, days taken for first flowering, number of flowers per plant, flower head