

Heterosis studies in okra (*Abelmoschus esculentus* (L.) Moench)

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SUMMARY

A study was made in okra with a 8 x 8 diallel to assess the extent of heterosis over mid and better parent for yield and its related attributes. Out of 28 hybrids 17 hybrids showed significant positive heterosis over mid and better parent the cross No. 74 x JNDO 5 exhibited the maximum heterosis (51.33 per cent) for yield per plant followed by No. 129 x JNDO 5 (40.45 per cent) over better parent. Heterosis for yield was manifested through component heterosis and hybrid vigour of even small magnitude for individual trait may had additive effect on yield per plant.

Key words : Heterosis and Okra.

Okra (*Abelmoschus esculentus* (L.) Moench) is one of the important vegetable crop of the world. India is second leading producer of vegetables in the world. Vegetables play vital role in the food of the vegetarian people. Development of high yielding hybrids may therefore be useful to get higher yield. The parent study was therefore undertaken to study the extent of heterosis in okra for seed yield and its attributes.

MATERIALS AND METHODS

The experiment was conducted at Vegetable Research Station, Gujarat Agricultural University, Junagadh during *kharif* 1999. The experimental material composed of eight parental lines of okra and their 28 F₁s obtained by all possible direct cross combinations among the parents. The F₁s along with parents were grown in randomized block design with three replications. Recommended package of practices were followed to the crop. Observations were recorded for nine quantitative traits viz., days to 50% flowering, days to first picking, pod length, pod girth, number of nodes on main stem, internodal length, plant height, leaf area and yield per plant. Mean values of ten randomly selected plants of each entry in each replication were recorded to estimate the percentage of heterosis.

RESULTS AND DISCUSSION

The percentage of heterosis for yield and yield components are presented in Table 1. The cross No. 114 x No. 129 exhibited significant heterosis (over better parent) for days to 50% flowering, days to first picking and pod length No. 114 x HRB 55 exhibited significant positive

heterobeltiosis for pod girth No. 129 x HRB 55 exhibited significant heterosis over better parent for number of nodes on main stem significant negative heterosis was recorded by No. 117 x No. 129 for internodal length No. 74 x JNDO 5 recorded significant positive heterosis over better parent while No. 117 x No. 41 exhibited positive heterosis over better parent for leaf area.

Out of 28 hybrids 18 showed significant heterosis of which 17 exhibited positive and significant heterosis. The maximum heterosis over mid parent was observed on cross combination (No. 74 x JNDO 5), 76.46 % followed by (No. 114 x JNDO 5) 56.84 % and (No. 129 x JNDO 5) 52.22 %. The positive heterosis over better parent was displayed by 17 crosses of which 10 were significant. The maximum heterobeltiosis (51.35 %) was recorded by the cross combination No. 74 x JNDO 5 followed by No. 129 x JNDO 5 (40.45 %), No. 114 x JNDO 5 (37.96 %), No. 117 x No. 129 (32.35 %) and No. 151 x JNDO 5 (30.73 %).

Manifestation of heterosis by particular cross combination (No. 74 x JNDO 5) was also realized for days to 50% flowering, number of nodes on main stem and plant height. Heterosis for yield per plant was observed by Wankhade *et al.* (1997) and Ramesh and Shyamal (1997). The crosses showing high heterosis for yield have also exhibited good specific combining ability effects. Evidently manifestation of heterosis for yield and yield components may be due to non additive gene effects in the parents.

The present study revealed manifestation and considerable amount of heterosis for yield per plant in okra. It indicates larger scope for heterosis breeding for commercial exploitation of heterosis.

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