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RESEARCH ARTICLE

Identification of specific cross combinations in sesame, (*Sesamum indicum* L.)

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SUMMARY

The combining ability was studied to identify the best specific cross combinations in sesame(*Sesame Indicum* L.) through diallel analysis with seven parents. Eight characters *viz.,* days to maturity, plant height, number of branches per plant, number of capsules per plant, number of seeds per capsule, 1000 seed weight and seed yield per plant and oil yield per plants were studied. Based on the general combining ability effects of parents DSS-9 was found to be good general combiner for days to maturity, plant height and number of capsules per plant, 1000 seed weight, seed yield per plant and oil yield per plant, number of branches per plant followed by Dhauri Local. The cross combination Gowry x JCT-7 showed negative significant *sca* for days to maturity. Dhauri Local x DSS-9 showed positive and significant *sca* effect for the traits, number of capsules per plant and seed yield and oil yield per plant followed by DSS-9 X RT-54 and hence recommended for yield improvement.

Key Words : Sesame, General combining ability, Specific combining ability

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Sesame, *Sesamum indicum* L. is an ancient oil crop grown throughout India having tremendous potential for export. It offers several advantages by virtue of its faster growth and short duration. However, it has not contributed enormously to the total oil seed production mainly because of average low yield level (421 kg/ha) in comparison with some other countries like China (705 kg/ha), Japan (700 kg/ha),Korea (635 kg/ha) and Thailand(575 kg/ha). Therefore, there is an urgent need to augment its productivity through the incorporation of wide adaptability and high yield potential. The performance and adaptation of parents are not always a true indicator of superior combining ability as it depends upon complex interaction system among genes. Thus, critical choice of parents is the most crucial step in any breeding programme. Particularly in heterosis breeding. Hence, the present investigation was carried out to identify the best general combiners and specific cross combinations for seed yield and its components in sesame.

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MATERIALS AND METHODS

The present investigation was conducted at Plant breeding Farm , College of agriculture , UAS Raichur. The experimental material for this study consisted of seven parents (JCT-7,DSS-9,CO-1,RT-54,Dhauri Local, Gowry-173,MT-75) were selected. the selected seven parents were planted in crossing block during *Kharif* season and crossed in all possible combinations including reciprocals. The parents along with their 21 straight and 21 reciprocal F1's were grown in randomised complete block design with two replications during summer season. Each entry was sown in single row of 5m length having 30 x 15 cm crop geometry. A single non experimental row was grown all around the experimental area to neutralise the border effect. Recommended agronomic practises were adopted to raise good crop of sesame. Data were recorded on five randomly selected plants in each row for seven yield and yield attributes. Combining ability analysis