EXPRESSION OF COMBINING ABILITY FOR QUALITY TRAITS IN ELITE BREEDING LINES OF BRINJAL (*SOLANUM MELONGENA* L.)

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Abstract: Combining ability effects were estimated for different characters of brinjal in a line × tester mating design comprising 12 lines and 3 testers and their 36 F_1 hybrids. Parents and F_1 crosses differed significantly for general combining ability and specific combining ability effects for all the characters respectively. The result revealed high and significant differences among the parents and hybrids for most of the characters except ascorbic acid content, indicating the importance of both additive and non-additive gene action. On the basis of GCA effects across six characters, Punjab Neelam, DBSR-31, Ramnagar Giant, BR-SPS-14, ABSR-2 and Pant Rituraj were identified as most promising parents for inclusion in hybridization programme with the aim to improving fruit yield as well as other important characters. The most promising crosses showing high *per se* performance and significantly positive SCA effects for fruit yield and some other important characters were Punjab Sanyog x Black Beauty, Arka Nidhi x Dudhiya, DBSR-31 x Pant Rituraj, Ramnagar Giant x Dudhiya, BR-SPS-14 x Pant Rituraj, Azad Kranti x Black Beauty, Pusa Uttam x Dudhiya, ABSR-2 x Dudhiya, ABSR-2 x Pant Rituraj, ABSR-2 x Black Beauty, Pant Samrat x Dudhiya and Pant Samrat x Black Beauty. Some of the crosses exhibited high dry matter with low moisture like Pusa Uttam x Black Beauty and Ramnagar Giant x Dudhiya. These crosses may exploit in the breeding programme for obtaining transgressive segregants towards developing hybrid varieties.

Keywords: Brinjal, *solanum melongena*, hybrid, trait

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