

Combining ability and gene action studies for seed yield and quality attributes in field pea (*Pisum sativum* L.)

Sanjay Kumar Yadav, H.C. Nanda, Naveen Kumar Markam and E.C. Sao

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ABSTRACT : A field experiment with 6 parents and their 15 hybrid obtained from half diallel mating design was carried out in three replication during *rabi* 2012-13 to study combining ability for yield and quality traits in field pea. The general combining ability (*gca*) and specific combining ability (*sca*) effects were highly significant, indicating both additive and non-additive type of gene action. The variance due to *sca* was higher than *gca* in all studied traits, indicating the presence of non-additive gene action. The parent Ambika was found to be the best general combiner for plant height, primary branches/plant, stipule length, stipule width, number of pods/plant and hundred seed weight. Whereas, parent DDR-27 was noted as best general combiner for earliness. Among crosses, cross Paras x DDR-27 was registered as best specific combiner for traits *viz.* leaflet length, number of seeds/pod, seed yield/plant and protein content. Similarly, cross Subhra x Pant P-25 was registered as best cross combination for characters plant height, primary branches/plant, hundred seed weight, seed yield/plant, biological yield/plant and protein content. Cross Ambika x DDR-27 was recorded best cross for characters plant height, stipule length, stipule width, pods/plant, number of seeds/plant. Hence, these crosses can be exploited in future breeding programme.

Key Words: Field pea (*Pisum sativum*), gene action, general combining ability (*gca*), specific combining ability (*sca*), pod length, no.of pods/plant, no.of seeds/pod, 100-seed weight, seed yield/plant, harvest index.