

□ Detection of epistasis, additive and dominance components of variation for seed yield and its attributes in Indian mustard (*Brassica juncea*).

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Abstract : This study was conducted to detect epistasis and importance of additive and dominance variances for seed yield and contributing traits using 27 progenies produced by crossing nine lines with three testers, viz. NPJ 112, RRN 727 and their F₁ in triple test cross fashion. Analysis of variance revealed the existence of epistasis for all the traits except secondary branches/plant and oil content. Its partitioning showed higher magnitude of (i) type for days to flowering, days to maturity and primary branches and (j+l) type for siliqua length, seeds/siliqua, 1000/seed weight and seed yield. Significant MS due to sums (L_{1i} + L_{2i}) and differences (L_{1i}-L_{2i}) for days to flowering, maturity, plant height, seeds/siliqua, 1000-seed weight and seed yield indicated the role of both additive (D) and dominance (H) variance in their inheritance. Estimates of D and H components revealed predominance of D for days to flowering, maturity, plant height, primary and secondary branches and 1000-seed weight and H for remaining 6 traits, viz. number of siliquae on main shoot, main shoot length, siliqua length, seeds/siliqua, oil content and seed yield. Non-significant correlation coefficient for all the traits except 1000-seed weight indicated the scatter of dominant alleles between testers. Degree of dominance (H/D)^{1/2} indicated over dominance for siliquae on main shoot, main shoot length, siliqua length and seeds/siliqua. Thus, epistasis was an integral component with conspicuous role of both additive and dominance variance for different characters. Therefore, the study will be helpful in deciding the breeding strategy that would enable to utilize maximum proportion of fixable as well as non-fixable genetic variation in Indian mustard.

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