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Research Article

INTER-RELATIONSHIP ANALYSIS OF YIELD AND YIELD COMPONENTS IN INDIAN MUSTARD, *BRASSICA JUNCEA* L

[*]Nagendra Maurya, A.K. Singh and S.K. Singh
*[*1]Head of Department, Department of Genetics and Plant Breeding*
Tilakdhari college, Jaunpur -222002 (U.P)
**Author for Correspondence*

ABSTRACT
Correlation studies were carried out for Parent, F_1 and F_2 generations of the diallele crosses in Indian mustard. Seed yield was highly, significantly and positively correlated with days to 50 % flowering, plant height, number of primary branches per plant, length of siliqua, and test weight. Hence selection for the higher values of these traits will be desirable to increase seed yield.

Key Words: *Brassica Juncea, Correlation and Seed Yield*

INTRODUCTION
Oilseed mustard (*Brassica juncea* L. Czern & Coss) is third most important oil crop in the world. Average yield of mustard is very low as compared to its genetic potential. To make available high yield is one of the most important purposes for present study. As known seed yield is a complex character that, can be determined by several components. In order to attract the attention to which one has greatest influence on seed yield. Correlations between yield and yield component have repeatedly been analyzed in traditional cultivars of mustard with a high oil per cent (Singh and Singh, 1997).

MATERIALS AND METHODS
One hundred genotypes from diallele faishion (10P,45F_1, & 45F_2) parental lines used as Varuna, Rohini, Krishna, Vaibhav, Vardan, maya, NDRE4, Rh-9304, RH-819and Pusa Mahak, field experiments were conducted at the Experimental Research Farm of Tilakdhari Post Graduate College, Jaunpur (Uttar Pradesh , India) during 2010-11. The trials were carried out in Randomized Block Design with thrice replications. Each treatment was grown in 3.00 X 0.45m plot with plant to plant space of 15cm. Observations were recorded on 5 random to say competitive plants for days to 50% flowering and maturity, plant height (cm), primary and secondary branches per plant, number of siliquae on main raceme, length of siliqua, number of seeds per siliqua, test weight (g), oil contents (%) and seed yield per plant (g).Statistical analysis was done using the mean data of the correlation analysis was used as suggested by Robinson *et al*., (1951).

RESULTS AND DISCUSSION
The results of the correlation coefficients among the traits studies during 2010-11 as shown in Table-1. A high positive and significant correlation ($P<0.01$) was observed between length of siliqua (0.320), test weight (0.358) seed yield (0.580) and days to 50% flowering; Number of primary branch (0.291),seed yield (0.468) and plant height; Seed yield (0.256) and number of primary branches per plant; Test weight (0.192),seed yield (0.341) and test weight positive and significant relationship ($P <0.05$) between seeds per siliqua days to 50% flowering, number of secondary branches per plant and plant height also observed by Basalama (2008); Mishra *et al.,* (2007); Singh, (2004) and Singh and Singh (2010).

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Table 1: Genotypic and phenotypic correlations coefficient among seed yield and its contributing characters in Indian mustard

Characters	2. Days to maturity	3. Plant height	4. Number of primary branches/ plant	5. Number of secondary branches/ Plant	6. Number of siliquae on main raceme	7. Length of siliqua	8. Number of seeds/ siliqua	9. Test weight	10. Oil content	11. Seed yield
1.Days to 50% flowering	rg - 0.032 rp – 0.017	-0.539 -0.473**	- 0.246 - 0.204*	- 0.136 - 0.125	-0.329 -0.306**	0.396 0.320**	0.221 0.191*	0.407 0.358**	-0.007 -0.013	0.640 0.580**
2.Days to maturity		rg – 0.067 rp – 0.061	0.103 0.091	- 0.473 - 0.458 **	- 0.141 - 0.135	-0.026 -0.008	0.177 0.159	-0.016 -0.012	0.084 0.057	0.082 0.079
3.Plant height			rg – 0.351 rp – 0.291**	0.234 0.224*	- 0.132 - 0.129	-0.219 -0.165	-0.116 -0.094	-0.121 -0.105	0.061 0.045	0.497 0.468**
4.Number of primary branches/plant				rg – 0.224 rp – 0.029	- 0.057 - 0.044	-0.145 -0.048	-0.042 -0.040	-0.106 -0.085	0.057 0.049	0.301 0.256**
5.Number of secondary branches/plant					rg -0.163 rp- 0.157	-0.001 -0.001	-0.083 -0.075	-0.030 -0.030	-0.121 -0.086	0.016 0.014
6.Number of siliqua on main raceme						rg -0.309 rp-0.256**	-0.392 -0.345**	-0.072 -0.061	-0.010 0.002	0.156 0.150
7.Length of siliqua							rg -0.175 rp -0.130	0.279 0.192**	-0.042 -0.010	0.433 0.341**
8.Number of seeds/ Siliqua								rg 0.181 rp 0.137	0.026 0.047	0.052 0.046
9.Test weight									rg -0.084 rp -0.041	0.368 0.322**
10.Oil content										rg 0.023 rp 0.016

*Note - ** & * denote significant at 1% and 5% respectively*

We obtained that there was a statistically significant (P<0.01) and negative correlation between plant height (-0.473), number of siliquae on main raceme (-0.306) and days to 50% flowering. Seed yield and oil contents need to be considered under selection of genotypes in experimental programme.

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