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Short Communication

Path Analysis in Taramira (*Eruca sativa* Mill.)

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Taramira (*Eruca sativa* Mill.) is an important oilseed crop of rabi season grown in the arid and semi-arid areas of northern states of India. Its oil is mostly used in the manufacture of grease, soap, plastics, lubricants, paints and chemicals because of its high erucic acid content. Rajasthan is the leading state for taramira as it shares more than 65% area and contributes about 60% to total production of the country. Taramira is a hardy crop that can be successfully grown on dry land areas in poor sandy soils on conserved soil moisture. Taramira dose not require much preparatory tillage due to its efficient and fast penetrating root system permitting extraction of soil water from deep soil layers. In view of the importance of this crop, present investigation was carried out to assess the character association and path analysis for seed yield and yield contributing traits.

Ninety-two diverse taramira accessions were evaluated under unirrigated conditions in an augmented complete block design with four blocks with seven check varieties at research farm of SKN College of Agriculture, Jobner, during rabi seasons of 2003-04 (Y_1) and 2004-05 (Y_2). Each accession was sown in two 5 m long rows with row spacing 30 cm and within row plant to plant distance of 10 cm. Ten random plants were taken in each entry for recording the observations on plant height (cm), primary and secondary branches

Table 1. Direct and indirect effects of different characters of taramira on seed yield at phenotypic level

Character	Year	50% flowering	Plant height	Primary branches plant^{-1}	Secondary branches plant^{-1}	Siliqua length	Seeds siliqua^{-1}	Siliquae plant^{-1}	Test weight	Phenotypic correlation with seed yield plant^{-1}
50% flowering	Y_1	**-0.0803**	-0.0177	-0.0045	0.0348	-0.0080	-0.0068	0.0001	0.0157	-0.0667
	Y_2	**-0.0241**	-0.0069	0.0018	-0.0012	-0.0077	-0.0127	-0.0096	-0.0005	-0.0609
Plant height	Y_1	0.0062	**0.2276**	0.0144	0.0404	0.0007	0.0049	0.0872	-0.0156	0.3658**
	Y_2	0.0027	**0.0620**	0.0146	0.0313	0.0582	0.0412	0.1447	-0.0014	0.3533**
Primary branch plant^{-1}	Y_1	0.0019	0.0173	**0.1892**	0.0238	0.0301	0.0179	0.0680	0.0199	0.3682**
	Y_2	-0.0008	0.0158	**0.0576**	0.0530	0.0386	0.0445	0.1649	-0.0023	0.3713**
Secondary branch plant^{-1}	Y_1	-0.0112	0.0368	0.0180	**0.2496**	0.0191	0.0257	0.0907	0.0423	0.4711**
	Y_2	0.0002	0.0143	0.0224	**0.1361**	0.0152	0.0200	0.1602	-0.0018	0.3666**
Siliqua length	Y_1	0.0065	0.0015	0.0585	0.0490	**0.0975**	0.0436	0.0647	0.0171	0.3384**
	Y_2	0.0010	0.0203	0.0125	0.0116	**0.1782**	0.0491	0.0689	0.0001	0.3416**
Seeds siliqua^{-1}	Y_1	0.0029	0.0060	0.0183	0.0346	0.0229	**0.1857**	0.0984	0.0179	0.3866**
	Y_2	0.0021	0.0171	0.0172	0.0182	0.0584	**0.1496**	0.1055	-0.0011	0.3670**
Siliquae plant^{-1}	Y_1	0.0001	0.0597	0.0387	0.0681	0.0190	0.0550	**0.3324**	0.0077	0.5807**
	Y_2	0.0005	0.0206	0.0218	0.0501	0.0282	0.0363	**0.4353**	-0.0027	0.5901**
Test weight	Y_1	-0.0081	-0.0227	0.0241	0.0676	0.0107	0.0212	0.0165	**0.1563**	0.2656*
	Y_2	-0.0018	0.0126	0.0189	0.0349	-0.0014	0.0230	0.1667	**-0.0071**	0.2458*

Residual factor (Y_1) = 0.6203, Residual factor (Y_2) = 0.7310, * Significant at P = 0.05 and **Significant at P = 0.01, Y_1 = 2003-04 and Y_2 = 2004-05.

plant^{-1}, siliqua length (cm), seeds siliqua^{-1}, siliquae plant^{-1}, test weight (g) and seed yield plant^{-1} (g) while data relating to days to 50% flowering were recorded on whole plot basis. The experimental data were subjected to analysis for variability parameters, correlation coefficients and path analysis (Dewey and Lu, 1959).

Significant differences among genotypes were observed for all traits studied in both the years. Seed yield per plant also showed positive and significant association with all the traits except days to flowering. Path coefficient analysis at phenotypic level for different characters on seed yield per plant over two years provided a few interesting points (Table 1). There was a good correspondence between direct effects and correlation with seed yield. Siliquae per plant registered high positive direct effect on seed yield per plant, which also had positive correlation in both the years. On the other hand, most other traits had positive direct effect, but varied in magnitude in both the years. This may be attributed to their sensitivity to the environment. The direct effect of days to 50% flowering was negative in both the years. In comparison to direct effects, the indirect effects were low in magnitude. Further, they varied in magnitude and direction between the years. These results are in conformity with the findings of other workers in taramira (Yadav and Kumar, 1984; Nehra *et al.*, 1989). Thus siliquae per plant registered as the important component in taramira. Other important characters are seeds per siliqua and secondary branches per plant because of its remarkable consistence in maintaining significantly high positive correlation as well as positive direct effects with seed yield over both the years. Hence more weightage should be given to siliquae per plant while making selection for high yielding varieties in taramira.

References

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