

Correlation and path analysis for seed yield in linseed (*Linum usitatissimum* L.)

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SUMMARY

A field experiment was conducted at Oilseed Research Area, Department of Plant Breeding and Genetics, IGKV, Raipur (CG) during Rabi 2004-05 to study the association analysis for yield and its characters in linseed. The genotypic and phenotypic correlation coefficient obtained between different traits were similar in direction, while in magnitude, genotypic correlations were higher than the corresponding phenotypic correlations. The traits, number of seeds per plant, number of secondary branches per plant, number of capsules per plant, number of primary branches per plant, 1000 seed weight and days to maturity had the strong positive association with seed yield. Path coefficient analysis revealed that importance of number of capsules per plant as major yield contributing component in linseed indicated that selection of desirable plant could be achieved.

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Key words : Association, Correlation, Path, Coefficient, Linseed

Linseed (*Linum usitatissimum* L.) is an important Rabi oilseed crop of Chhattisgarh. The irrigated linseed area in the state is very low. In Chhattisgarh linseed is grown mostly rainfed as well as in crop fields. Though linseed is important oilseed crop in Indian economy due to its wide industrial utility, the average productivity is quite low as compared to other countries. Since yield is a complex quantitative character and is governed by a number of other characters, the exact association between these characters with yield must be known for effective selection. Therefore, the present investigation has been carried out to understand the genetic association of yield and its components.

MATERIALS AND METHODS

The experiment was conducted at Oilseed Research Area, Department of Plant Breeding and Genetics, IGKV, Raipur with six parents namely, Solan, Kiran, R 552, LCK 88062, Polf 22 and SIKO 10 and their F_1 , F_2 and F_3 generations of ten different crosses namely, Solan x R 552, Solan x LCK 88062, Solan x Polf 22, Solan x SIKO 10, Kiran x LCK 88062, Kiran x SIKO 10, Kiran x Polf 22, R 552 x LCK 88062, R 552 x SIKO 10 and R 552 x Polf 22. The hybrids F_1 , F_2 , F_3 were evaluated

along with their parents in randomized complete block design with four replications. The above said material was employed in the estimation of genetic parameters for days to 50 per cent flowering, days to maturity, plant height, number of primary branches per plant, number of secondary branches per plant, number of capsules per plant, number of seeds per capsule, number of seeds per plant and 1000 seed weight. Single row of 4 m length and 30 cm apart were planted for each generation i.e., P_1 , P_2 and F_1 whereas F_2 and F_3 generation were grown in 4 rows. The plant to plant distance was maintained at 10 cm. Each cross and its generations were surrounded by border rows of linseed variety LMH-62 with same spacing between plants and rows. Observations were recorded on single plant basis for each and every character for crosses under study. Five single competitive plants were observed for P_1 , P_2 and F_1 but for F_2 and F_3 , 20 plants were observed. Genotypic and phenotypic correlation were worked out according to Al-Jibouri *et al.* (1958) and path analysis as per Dewey and Lu (1959).

RESULTS AND DISCUSSION

The results obtained from the present investigation as well as relevant discussion have been presented under following heads :

Correlation coefficient analysis:

The results revealed that the traits, number of seeds per plant, number of secondary branches per plant, number of capsules per plant, number of primary branches per plant, 1000 seed weight, days to 50 per cent flowering

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