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Association analysis for yield and contributing traits in yellow seeded linseed (*Linum usitatissimum* L.) for Chhattisgarh state

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Abstract

Sixty three (63) yellow seeded linseed genotypes taken from AICRP on linseed, Indira Gandhi Krishi Vishwavidyalaya, Raipur (C.G.) along with three checks (Surabhi, R-552, RLC-92) were evaluated for association analysis among yield and yield contributing traits in yellow seeded linseed at Raipur (C.G.). Among all the traits showing significant correlation, days to 50% flowering was found to have significant positive correlation with days to maturity (0.659) whereas, it was found negatively correlated to seed length (-0.691). Seed length was also found to be negatively correlated to days to maturity (-0.691). Number of capsules/plant and number of seeds per plant showed a positive significant correlation (0.965). Seed yield per plant showed the highest significant correlation with number of seeds per plant (0.73) followed by number of capsules per plant (0.696).

Keywords: Linseed, yellow seeded linseed, association analysis

Introduction

Linseed is a very important oilseed crop for our country. Every part of the crop is commercially utilized. Its oil holds a very important place in industrial aspects. However, due to its drying habit and fast oxidation, it lacks behind in edible purposes. Yellow seeded linseed has been designated as the linseed form with higher and healthy oil profile and more suitable for edible purpose. It has a thinner seed coat and hence produces clear oil. Its healthy profile and buttery taste is suited for the edible market more than the brown seeded linseed oil. Chhattisgarh is one of the major linseed producing states of India. Yield is a complex and highly variable character which is a result of cumulative effect of its component characters. The yield components may not always be independent in nature but interlinked. The selection practiced for one character may simultaneously bring change in other traits. Thus, association among yield and its attributing characters is must. The selection of traits with high expression and association (association being positive) considerably increase the rate of desirable genes. A clear picture of contribution of each component in final expression of complex character would emerge through the study of correlations revealing different ways in which component attributes influence the complex trait (Savita *et al.*, 2011) [2]. In order to achieve the goal of increased production by increasing the yield potential of the crop, knowledge of direction and magnitude of association between various traits is essential for plant breeders (Iqbal *et al.*, 2013).

Materials and Methods

In this investigation, Sixty three (63) yellow seeded linseed genotypes from AICRP on Linseed, Raipur Chhattisgarh along with three checks namely Surabhi (yellow seeded variety), R-552 and RLC-92 were evaluated for seed yield and its contributing traits in Randomized Block Design with three replications during *Rabi* 2015-16 at Indira Gandhi Krishi Vishwavidyalaya, Raipur, Chhattisgarh. Observations recorded for each genotypes were plant height, technical plant height, days to 50% flowering, days to maturity, number of capsules per plant, number of seeds per capsule, number of seeds per plant, seed length, 100 seed weight and seed yield per plant. Association analysis was worked out using Spar-2 software.

Results and Discussion

Correlation analysis in yellow seeded linseed revealed that plant height was negatively and significantly correlated with days to maturity (-0.641). Days to 50% flowering was found to have significant positive correlation with days to maturity (0.659). Taking seed properties

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under consideration, days to 50% flowering was found negatively correlated to seed length (-0.691). Seed length was found to be negatively correlated to days to maturity (-0.691) signifying that increased days to maturity may tend to decrease the seed length and since days to flowering was positively correlated to days to maturity thus, it was also negatively correlated to seed length. Seed yield per plant showed the highest significant correlation with number of

seeds per plant (0.73) followed by number of capsules per plant (0.696).

Number of capsules/plant and number of seeds per plant showed a positive significant correlation (0.965). Oil% was however not found to be significantly correlated to seed length or seed yield. Plant height and days to maturity were found to be negatively and significantly correlated. The negative correlation between days to maturity and seed yield was not found to be significant. (Table-1).

Table 1 correlation coefficients of yield and contributing traits in yellow seeded linseed-

	Plant height (cm)	Days to 50% flowering	Days to maturity	Technical plant height (cm)	Number of capsules/plant	Number of seeds/plant	100 seed weight(g)	Number of seeds/ capsule	Seed length (cm)	Seed yield per plant (g)	Oil%
Plant height (cm)	1	-0.388	-0.641*	0.331	0.499	0.491	0.569	0.0007	0.526	0.413	0.24
Days to 50% flowering		1	0.659*	-0.211	-0.248	-0.306	-0.118	0.281	-0.691*	-0.147	-0.063
Days to maturity			1	-0.434	-0.498	-0.558	-0.438	0.09	-0.641*	-0.466	-0.432
Technical plant height (cm)				1	0.324	0.331	0.282	0.209	0.355	0.18	0.18
Number of capsules/plant					1	0.965**	0.392	0.12	0.403	0.696*	0.243
Number of seeds/plant						1	0.355	0.222	0.407	0.73**	0.303
100 seed weight (g)							1	0.091	0.254	0.425	0.182
Number of seeds/ capsule								1	-0.105	0.311	-0.033
Seed length (cm)									1	0.329	0.134
Seed yield per plant (g)										1	0.297
Oil%											1

*: significant at 5% level of significance. **: significant at 1% level of significance

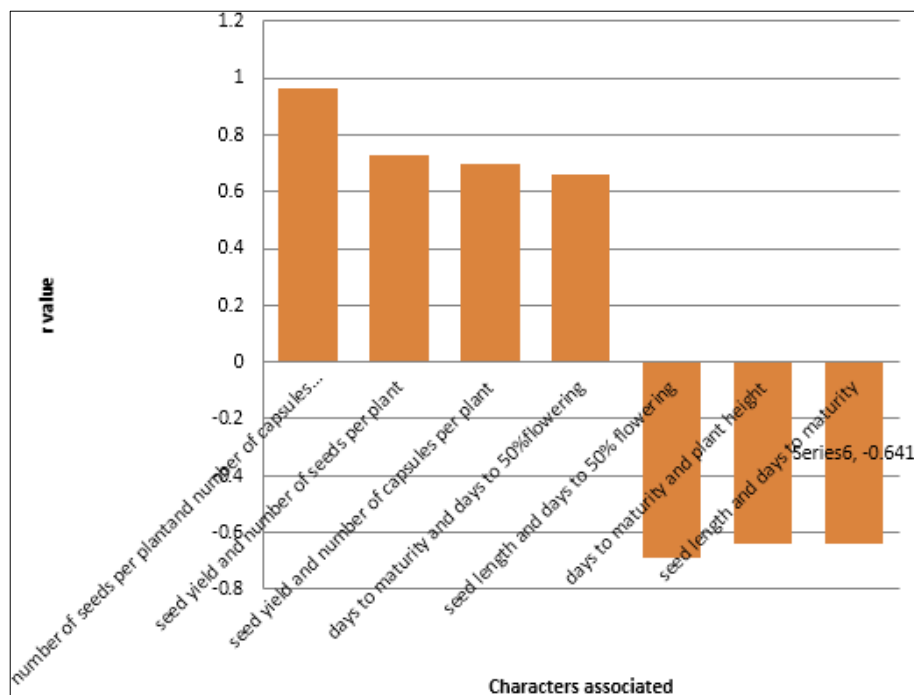


Fig 1: Significant correlation among seed yield and its component traits

Reference

- Iqbal A, Nawaz S, Babar T, Bukhari S, Amjad M, Khan AS, Khan S, Ahmed N. Estimation of genetic variability in Linseed (*Linum usitatissimum* L.) using molecular marker: Molecular characterization of linseed genotypes. Estimation of genetic variability in Linseed (*Linum usitatissimum* L.) using molecular marker: Molecular characterization of linseed genotypes. 2014; 4:151-156.
- Savita SG, Kenchanagoudar PV, Parameshwarappa KG, Rudranaiik V. Correlation and path coefficient analysis for yield and yield related components in linseed (*Linum Usitatissimum* L.) germplasm. Karnataka J Agric. Sci. 2011; 24(3):382-386
- Singh RK, Chaudhary BD. Biometrical methods in Quantitative Genetic Analysis. Kalyani publishers, New Delhi, 1995