



## Research Notes

### Character association analysis in sesame (*Sesamum indicum* L.)

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#### Abstract

Two genotypes of sesame namely TMV4 (branched) and CS601 (shy branch) were selected for the character association study to assess the relationship among yield and its components for selection criteria to be followed while developing varieties. Observations were recorded on five traits viz., plant height, number of branches per plant, number of capsules in main stem, number of capsules in branches and seed yield per plant. Character association analysis revealed positive association of seed yield per plant with number of capsules on branches per plant in both TMV 4 and CS 601. Likewise number of branches and number of capsules on main stem had positive association in both genotypes. However, the association between number of branches and seed yield, between number of branches and number of capsules on branches, between number of capsules on main stem and number of capsules on branches had positive association in TMV 4 only. Plant height had positive association with number of capsules on main stem in CS 601 only. This study clearly indicated the differential association of characters in branched and shy branch genotypes. Hence while formulating selection index, separate association studies are necessary if the genotypes differed on branching types.

#### Key Words:

Sesame, seed yield, correlation, shy branch.

Sesame (*Sesamum indicum* L.) is one of the ancient and traditional oilseed crops cultivated in India, for its quality oil. Yield is a polygenically controlled complex quantitative trait and highly influenced by the environment. Selection merely based on yield is not effective. A study of nature and degree of association of component characters with yield assumes greater importance for fixing up characters that play a decisive role in influencing yield. Information on the association of plant characters with seed yield is of great importance to breeder in selecting desirable genotypes. In sesame, various type of branching pattern viz., mono stem, shy branching and profuse branching habits are available. Separate selection indices for yield improvement in these genotypes are necessary. Hence, the present investigation was carried out to gather information on character association in two varieties of sesame differing on the branching pattern.

Two sesame genotypes namely TMV4 and CS601 were taken for the study. Of these two varieties, TMV4 is a profuse branching type with 85-90 days duration. A breeding line CS601 developed at Tamil Nadu Agricultural University (TNAU) is a shy branching (0-2) type with 85-90 days duration. The crop was raised during *rabi*, 2008 at the Oilseeds farm, TNAU, Coimbatore in a 7.2 m<sup>2</sup> plot with two replications. Seeds were sown with a spacing of 30 cm between rows and 30 cm between plants. Recommended package of practices with need based plant protection measures were taken up to raise a good crop. Observations were recorded on 40 plants in each genotype for yield attributing characters viz., plant height, number of branches per plant, number of capsules in main stem, number of capsules in branches and seed yield per plant. Simple correlation coefficients for yield and yield components and path analysis on seed yield were estimated as per the standard method.

Simple correlation coefficients among the yield and yield component characters in sesame are presented in Table 1.



### Seed yield vs other characters:

Correlation studies showed that characters viz., number of branches per plant had significant and positive association with seed yield in both TMV 4 and CS 601. However number of branches and number of capsules on main stem had significant and positive association with seed yield in TMV 4 and CS 601 alone respectively. Plant height is significantly and positive association with number of capsules on main stem in CS 601 only. Number of branches had significant and positive association with number of capsules on branches in both TMV 4 and CS 601 and significant and positive association with number of capsules on main stem in TMV 4 alone. Number of capsules on main stem had significant and positive association with number of capsules on branches in TMV 4 alone. This clearly indicates the differential contribution of yield components on seed yield in genotypes differing on branching pattern. Hence separate selection indices are necessary for genotypes differing on the habit. Tomar *et al.* (1999), Pawar *et al.* (2002), Kumaresan and Nadarajan (2002) and Deepa Sankar and Ananda Kumar (2003) also reported various components association with seed yield. The number of branches per plant had significant and positive association with seed yield per plant for the variety TMV4 and the trait number of capsules in main stem had significant and positive association with seed yield per plant for the genotype CS601. Such results are in concurrence with the results of Selvi Subramanian and Subramanian (2008) and Rami Reddy Kumar and Sundaram (2002).

To conclude, the character association analysis revealed positive association of seed yield per plant with number of capsules on branches per plant in both TMV 4 and CS 601. Likewise number of branches and number of capsules on main stem had positive association in both genotypes. However,

the association between number of branches and seed yield, between number of branches and number of capsules on branches, between number of capsules on main stem and number of capsules on branches had positive association in TMV 4 only. Plant height had positive association with number of capsules on main stem in CS 601 only. This study clearly indicated the differential association of characters in branched and shy branch genotypes. Hence while formulating selection index, separate association studies are necessary if the genotypes differed on branching types.

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**Table 1. Simple correlation coefficients between seed yield and different traits in Sesame**

<b>Characters</b>	<b>Genotypes</b>	<b>No. of Branches</b>	<b>No. of capsules on main stem</b>	<b>No. of capsules on branches</b>	<b>Seed yield /plant(g)</b>
<b>Plant Height</b>	<b>TMV4</b>	0.11	0.13	0.21	0.09
	<b>CS601</b>	-0.18	0.38*	-0.19	0.04
<b>No. of Branches</b>	<b>TMV4</b>		0.38*	0.71*	0.61*
	<b>CS601</b>		0.31*	0.08	-0.06
<b>No. of capsules on main stem</b>	<b>TMV4</b>			0.51*	0.25
	<b>CS601</b>			0.29	0.26
<b>No. of capsules on branches</b>	<b>TMV4</b>				0.75*
	<b>CS601</b>				0.67*

**\*Significant at 5% Level**