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Character Association Analysis in Sesamum (*Sesamum indicum* L.) Grosses*

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In a study of F_2 and F_3 population of three crosses of sesamum, seed yield was observed to be positively and significantly associated with plant height, primary branches, secondry branches and capsule number. The above characters were also found to be associated among one another and showing the potentiality of these characters to be included in the selection programme.

The efficiency of selection mainly depends on the direction and magnitude of association between yield and its component characters. Correlation studies have been made in sesamum varieties by Osman Khidir and El Gizouli Osman (1970), and Shukla and Verma (1976). But attempts to study the correlations in segregating populations have been meagre. In this investigation correlation coefficients were worked out in F_2 and F_3 generations and the results are presented.

MATERIAL AND METHODS

Three crosses of sesamum *viz.*, Si 1277 × KRR 2 (Cross A), Si 1277 × Si 2577 (Cross B) and Si 1277 × TMV 4 (Cross C) were studied in F_2 and F_3 generations. A total of 300 F_2 segregants were studied in F_2 generation. Thirty out of 300 F_2 segregants were forwarded to F_3 generation and raised in randomised block design, replicated thrice. The observations were made on individual plant basis in F_2. In F_3 generation the observations were made on five randomly selected single plant from each family in each replication. The estimates of intercomponent correlation were calculated in F_2 and F_3 generations as per the method suggested by Goulden (1952).

RESULTS AND DISCUSSION

The seed yield had strong association with capsule number, primary branches, secondary branches and plant height (Table). The positive and significant association of seed yield with capsule number was reported by Osman Khidir and El Gizouli Osman (1970), and Shukla and Verma (1976) in some of the sesamum varieties. In sesamum varieties Muhammed *et al.* (1970) and Shukla and Verma (1976) also obtained strong and positive

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association of primary branches and secondary branches with seed yield. The positive association of plant height with yield in sesamum was in harmony with the findings of Ramachandran *et al.* (1972). The positive association of seed yield with capsule length was in accordance with the findings of Phadnis *et al.* (1970) in sesamum. The positive association of capsule length was however inconsistent over the crosses and generations. The days to maturity had positive and significant association with seed yield in F_2 of cross B and F_2 of oross A. A similar positive association was obtained by El Gizouli Osman and Osman Khidir (1974).

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TABLE Correlation Coefficients (r) between yield and its Components in F_2 and F_3 Generation of sesamum crosses

Cross A

Characters		Plant height	Primary branches	Secondary branches	Capsule number	Capsule length	Day to maturity
Seed yield	F_2	−0.0527	0.4804**	0.5716**	0.7376*	0.4782**	0.2581
	F_3	0.4794**	0.7196**	0·5731**	0.9833**	0.1419	0.3614*
Plant height	F^2		−0.0736	−0.4311*	0.4305*	0.0589	−0.0213
	F^3		0.2962	0.1568	0.4098*	0.0563	0.0520
Primary branches	F^2			0.3491	0.4875**	0.2145	−0.0723
	F^3			0.5302*	0.7478**	0.5097**	0 2708
Secondary branches	F^2				0.4923**	0.1719	−0.081.1
	F^3				0.6196**	0.1575	0.1327
Capsule number	F^2					0.3714*	−0.1202
	F^3					0.3714*	−0.3812*
Capsule length	F^2						0.0814
	F^3						0.4499*

*Significant at 5% level

**Significant at 1% level

Table (Cotd).

CROSS B

Characters		Plant height	Primary branches	Secondary branches	Capsule number	Capsule length	Days to maturiry
Seed yield	F_2	0.3756*	0.5352**	0.2786	0 7846**	−0 0146	0.3876*
	F_3	0.4932**	0.5251**	0.6033**	0.7918**	0.1808	0.3306
Plant height	F_2	0.1	0.1656	0.1477	0.4382*	−0.0719	0,6889**
	F_3		0·3749*	0.4718**	0.4657**	−0 1482	0.1584
Primary branches	F_2			0.0533	0.4313*	0.2389	−0.0812
	F_3			0.4898**	0.5905**	0.0608	0.0224
Secondary branches	F_2				0.4565*	0.034	0.1335
	F_3				0.7088**	0.2985	−0 2635
Capsule number	F_2					−0 0515	0.4868**
	F_3					0.2685	0.0522
Capsule length	F_2						0.0325
	F_3						−0.0548

*Significant at 5% level

**Significant at 1% level

Table (contd) CROSS 6

Characters		Plant height	Primary branches	Secondry branches	Capsule number	Capsule length	Days to maturity
Seed yield	F_2	0.6431**	0.6008**	0.6056**	0.9458**	−0.2747	0.1438
	F_3	06473**	0.6265**	0.5188**	0,5681**	0.4187**	0.0970
Plant height	F_2		0.4380*	0.4509*	0.6782**	−0.0913	0.2235
	F_3		0.4159*	0.1188	0,5440**	0.2818	0 0642
Primary branches	F_2			0.5523**	0.6445**	−0,1331	−0.0667
	F_3			0.2847	0.2335	−0.0047	0.0623
Secondary branches	F_2				0.5900**	0.0004	−0.0154
	F_3				0,4564**	0.2575	−0.1922
Capsule number	F_2					0.3244	0.0154
	F_3					0,2558	0.0252
Capsule length	F_2						−0.3886*
	F_3						0.0897

*Significant at 5% level **Significant at 1% level