COMPLETED RESEARCH PROJECT

for the year 2004-2005

IMPROVEMENT OF THE OLEIFEROUS *BRASSICA CROPS*

Shahidur Rashid Bhuiyan[1]

Extended Summary

Name of the experiment: Selection of short duration high yielding materials from the F_2 generations obtained from 8 different intervarietal crosses (including reciprocals) of *Brassica campestris.*

An experiment was set in November 2005 at the Sher-e-Bangla Agricultural University farm with the broad objective of developing low crude fibre containing yellow seeded short duration *B. campestris* genotype(s) with increased oil content to replace the low yielding and comparatively low oil containing short duration grey seeded widely used local varieties- Tori-7 and BARI Sarisha-9. The F_2 seeds used in the experiment were obtained from F_1 plants of the eight cross combinations: Tori 7 x BARI Sarisha-6, Tori-7 x SAU YC, BARI Sarisha-9 x BARI Sarisha-6, BARI Sarisha-9x SAU YC and their reciprocals.

The experiment was set to have at least 270 plants of each cross combination and the crop was grown along with the two popular varieties- Tori-7 and BARI Sarisha 9 in each of eight plots of 42m x 6m. An intense selection was carried out in the F_2 segregating generation to select the most desirable plants.

The number of plants selected under each category involving the parent Tori-7 in the crosses is presented in Table 1. Within the 80 days group, 5 grey Tori-7 type and 3 yellow new plant type plants were selected from the cross Tori-7 x Bari Sarisha -6. Tori-7 type yellow seeded short duration (80 days) moderate to high yielding plants were selected from the cross BARI Sarisha 6 x Tori-7. Yellow seeded moderate to high yielding short duration new plant type was selected from BARI Sarisha 6 x Tori-7 and Tori-7 x SAU YC crosses. Yellow seeded short duration (80 days) high yielding new plant types were selected from the cross SAU YC x Tori-7. However, grey seeded short duration moderate to high yielding new plant types were also selected from each cross combination. The number of plants selected under each category involving the parent BARI Sarisha 9 in the crosses is presented in Table 2.

Yellow seeded short duration (80 days) high yielding new plant type 1, 2, 4 and 2 plants were selected respectively from the cross BARI Sarisha 9 x BARI Sarisha 6, BARI Sarisha 6 x BARI Sarisha 9, BARI Sarisha 9 x SAU YC and SAU YC x BARI Sarisha 9.

[1]Principal Investigator & Professor, Department of Genetics and Plant Breeding, Sher-e-Bangla Agricultural University, Dhaka.

Table 1. Selection of F_2 plants from the crosses involving the variety Tori-7

Cross combination	Seed coat colour	No. of plants selected	Yield status	Duration	Plant type
Tori-7 x BARI Sarisha 6	grey	5	Moderate-High	80	Tori-7
	yellow	4	Moderate -High	85	Tori-7
	yellow	3	Moderate-High	80	New
BARI Sarisha 6 x Tori-7	yellow	12	Moderate-High	80	Tori-7
	yellow	4	Moderate-High	80	New
	grey	6	Moderate-High	80	Tori-7
Tori-7 x SAU YC	yellow	5	Moderate-High	80	New
	grey	4	Moderate-High	80	New
SAU YC x Tori-7	yellow	3	Moderate-High	85	Tori-7
	yellow	4	High	80	New
	grey	5	Moderate-High	80	New

BARI Sarisha 9 type yellow and grey seeded short duration (80 days) high yielding 2 plants were selected from the cross BARI Sarisha 6 x BARI Sarisha 9. Two yellow seeded short duration (80 days) high yielding BARI Sarisha 9 type plants were selected from the cross BARI Sarisha 9 x SAU YC. Grey seeded short duration (80 days) moderate to high yielding 13 plants were selected from the cross combinations- BARI Sarisha 9 x BARI Sarisha 6, BARI Sarisha 6 x BARI Sarisha 9 and SAU YC x BARI Sarisha 9.

Table 2. Selection of F_2 plants from the crosses involving the variety BARI - Sarisha 9

Cross combination	Seed coat colour	No. of plants selected	Yield status	Duration	Plant Type
	yellow	5	Moderate-High	85	BARI Sarisha 9
BARI Sarisha 9 x	yellow	1	Moderate-High	80	New
BARISarisha 6	grey	3	Moderate-High	80	New
BARI Sarisha 6 x	yellow	2	High	80	BARI Sarisha 9
BARI Sarisha 9	yellow	7	Moderate-High	80	New
	grey	2	High	80	BARI Sarisha 9
BARI Sarisha 9 x	yellow	2	High	80	BARI Sarisha 9
SAU YC	yellow	4	Moderate-High	80	New
	grey	2	High	85	New
SAU YC x BARI	yellow	7	Moderate-High	85	BARI 9
Sarisha 9	yellow	2	Moderate-High	80	New
	grey	6	Moderate-High	80	BARI Sarisha 9

The selected plants, which showed good promise for moderate duration along with better performance, could be grown in the advanced generations for further selection in the following years to achieve the goal of developing higher yielding yellow seeded short duration variety of rape seed.