

## DEVELOPMENT OF LOW ERUCIC ACID MUSTARD (*Brassica rapa* L.) ELITE AND PROMISING LINES THROUGH DIALLEL CROSSING AMONG SELECTED MUSTARD VARIETIES IN BANGLADESH

Dr. Jamilur Rahman\*

### Executive Summary

Meeting the increasing demand of edible oil requires the development of high yielding oil crop varieties in Bangladesh. To facilitate the breeding of high yielding *Brassica rapa* crop varieties, the research was conducted on 6×6 half diallel cross to develop and then evaluate the F<sub>1</sub> hybrid lines of *B. rapa* for earliness, yield and yield attributes. The research was conducted in two rabi seasons of 2017 - 2019. In the 1<sup>st</sup> season, six parents were mated in half 6×6 diallel fashion to develop 15 F<sub>1</sub> hybrid lines and in the 2<sup>nd</sup> rabi season, the developed hybrids were evaluated for heterosis over two check varieties, BARI sharisha-14 (CV<sub>1</sub>) and local cultivar Maghi (CV<sub>2</sub>) and corresponding better parent at Sher-e-Bangla Agricultural University, Dhaka. The analysis of variances showed highly significant (p<0.001) differences among the genotypes for all the eleven yield and contributing traits. Upon crossing, the result of differential successful F<sub>1</sub> pod formation indicated differential sexual compatibility existed in the six parental lines used here. The analysis of mean performance showed that the hybrid combination P<sub>2</sub>×P<sub>6</sub> (80.00) matured with the lowest growth duration. Again, the highest seed yield was observed in the hybrid P<sub>1</sub>×P<sub>3</sub> (7.40 g), while the lowest seed yield was observed in hybrid P<sub>2</sub>×P<sub>4</sub> (2.33 g). The hybrid combinations, P<sub>1</sub>×P<sub>3</sub>, P<sub>1</sub>×P<sub>5</sub>, P<sub>1</sub>×P<sub>6</sub> and P<sub>3</sub>×P<sub>5</sub> showed positive standard heterosis over CV<sub>1</sub> and CV<sub>2</sub> for yield and yield contributing characters. Interestingly, only hybrid P<sub>1</sub>×P<sub>3</sub> showed standard heterosis over both the check varieties for seed yield. Considering the standard heterosis for yield and yield attributes, the tested hybrids viz., P<sub>1</sub>×P<sub>3</sub>, P<sub>1</sub>×P<sub>5</sub>, P<sub>1</sub>×P<sub>6</sub> and P<sub>3</sub>×P<sub>5</sub> might be selected as superior *B. rapa* hybrid lines. Moreover, the hybrid lines viz., P<sub>1</sub>×P<sub>4</sub>, P<sub>2</sub>×P<sub>5</sub>, P<sub>2</sub>×P<sub>6</sub>, P<sub>3</sub>×P<sub>4</sub>, P<sub>3</sub>×P<sub>6</sub>, P<sub>4</sub>×P<sub>5</sub> and P<sub>4</sub>×P<sub>6</sub> might also be selected as potential lines because these hybrids could produce transgressive segregants in advanced generations.

---

\* Professor, Dept. of Genetics and Plant Breeding, Sher-e-Bangla Agricultural University, Dhaka-1207