



An insight in the genetic control and interrelationship of some quality traits in *Brassica napus*

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ABSTRACT. A study on three leading lines (KN-256, KN-257, and KN-258) of *Brassica napus* and an approved variety, Punjab-Sarson, was conducted to gain insight into the genetic control of some quality traits using generation mean analysis. Our results showed that additive gene action predominated in the inheritance of oil content and erucic acid in cross KN-256 x KN-257 and in that of glucosinolates in KN-258 x Punjab-Sarson, indicating that these traits may be improved through selection in early segregating generations. Negative dominance can be exploited through heterosis breeding for the development of lines with low glucosinolates in cross KN-256 x KN-257. Protein content and oleic acid in cross KN-256 x KN-257, and oil content, protein content, and erucic acid in cross KN-258 x Punjab-Sarson depicted non-additive gene action and require further improvement in the later segregating generations. Most of the traits displayed high heritability estimates;

glucosinolate content in both the crosses and erucic acid in cross KN-258 x Punjab-Sarson also displayed high genetic advance, reflecting improvement of the trait in the early segregating generations. All the quality traits were positively correlated with oil content and with one another at both (genotypic and phenotypic) levels in KN-256 x KN-257. Negative correlation was observed between glucosinolate and erucic acid, oleic acid and erucic acid, and linolenic acid and oil content in cross KN-258 x Punjab-Sarson. Thus, gene action changed with the material, and cross KN-258 x Punjab-Sarson carried favorable combinations compared to KN-256 x KN-257.

Key words: *Brassica napus*; Correlation coefficients; Gene action; Heritability; Quality traits