

Genetic Variability And Character Association In Yield And Related Attributes In Non-Segregating Population Of Gobhi Sarson (*Brassica Napus* L.)

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ABSTRACT

Thirty-six F_1 's alongwith 8 parents were used to estimate genetic variability, heritability (broad and narrow sense) and association among 11 morphological, maturity, yield and related attributes in gobhi sarson (*Brassica napus* L.) during *rabi* 2002-03. The magnitude of genotypic variance as well as genotypic coefficient of variation were low as compared to both phenotypic variance and phenotypic coefficient of variation indicating thereby, the influence of environment in the expression of these traits. Highest phenotypic coefficient variation (PCV) was recorded for secondary branches per plant followed by siliquae number, seed yield and primary branches per plant suggesting that usefulness of phenotypic selection in improving these traits. The estimates of heritability in narrow sense were medium for days to 50% flowering, plant height, secondary branches and seeds per siliqua and rest were low (6.1 to 20.2%) indicating that in the present set of materials governed by non-additive gene action similarly low expected genetic gain also confirmed pre-dominant role of non-additive gene action. At genotypic level, seed yield exhibited significant positive association with all the character except maturity traits whereas, plant height revealed strong positive association with days to maturity, secondary branches, siliqua per plant and seed yield. Secondary branches exhibited positive association with number of siliquae per plant and seed yield. Hence, selection of either secondary branches per plant or siliqua per plant would not promote high yield but also would result in correlated positive response of their improvement. Path coefficient analysis revealed that plant height as well as siliquae on main raceme and 1000-seed weight would be selection criteria for yield improvement in non-segregating progenies of gobhi sarson.

Key words: *Brassica napus*, Variability, Correlation, Heritability, Non-segregating population, Path analysis.

INTRODUCTION

Winter rape (*Brassica napus* L.) is being tried in northern and north-west regions of the country called "Gobhi sarson" in Punjab. Its cultivation is picking up in India. The major constraint in the popularization of gobhi sarson in Kashmir valley is the lack of availability of early maturing and high yielding varieties that can fit in the traditional paddy-oil seed crop rotation followed by the farmers in the valley. To develop such early maturing cultivars having high yielding ability, it is essential to have information about nature and amount of genetic variability present in the base materials as well as the extent to which the desirable traits are heritable.

Seed yield is a complex metric trait, which is the end result of a number of traits often inter-related with each other. Selection of superior genotypes based on yield *per se* will be less efficient as yield is complex character and simultaneously contributed by many mutually related components. Understanding of various yield attributes that influence the final yield of the crop assumes greater importance. Selection for component traits has been found effective for improvement in seed yield Kumar and Yadav

(1978). The knowledge of heritability in association with correlation among the yield component is valuable in the selection of parents. Keeping this in view, the present investigation was carried out to understand the genetic behaviour of yield determining traits and their nature of association in cross combinations of gobhi sarson.

MATERIALS AND METHODS

The experimental material consisted of eight parents and their twenty eight F_1 's obtained by crossing the diverse parents of gobhi sarson were evaluated in randomized block design with three replications at research farm S. K. University of Agricultural Sciences and Technology, Shalimar Campus, Srinagar (J&K) during *rabi* 2002-03. Each F_1 was planted in three rows of five meter length with inter and intra row distance of 30 and 10 cm, respectively. Ten competitive plants from each plot and replication were randomly selected for recording data with respect to eleven maturity, morphological, yield and yield contributing traits viz., days to 50% flowering, days to maturity, plant height (cm), primary branches per plant,

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