

VARIABILITY AND INTERRELATIONSHIP AMONG
QUALITY TRAITS IN BRASSICA JUNCEA MUTANTS

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ABSTRACT

Twentysix promising stabilized mutants, derived by subjecting the dry seeds of Raya RL 18 (*Brassica juncea* (L) Czern and Coss) to different doses of gamma rays from Co⁶⁰ source in 1969, were tested in replicated advance large scale trials for seed yield in the year 1976-77 at Punjab Agricultural University, Ludhiana (India). These mutants recorded a grain yield potential ranging from 25-40 quintals per hectare as compared to 20 quintals/ha of RL 18 (Standard) i.e. an increase of 25 to 100 %.

The seeds of these mutants were analysed for quality traits viz., oil, protein, ash, crude fibre, Allyliso thiocynate, iodine value, free fatty acids, Sponification value, peroxide and sterol content exhibiting a range of 36-40%, 26.2-31.5%, 1.7-4.4%, 8.3-13.3%, 0.39-0.69%, 92.8-116.5, 1.1-2.8%, 160-181, 2.1-4.2% and 0.28-0.96% with mean values of 37.7%, 28.3%, 2.8%, 10.4%, 0.51%, 103, 1.96%, 172, 3.4% and 0.51% respectively. RLM 29 recorded the maximum oil content (40%), whereas, RLM 82 gave the highest protein (31.5%). RLM 549 showed the lowest ash content (1.7%), however, RLM 215 had the lowest crude fibre(8.3%). RLM 85 contained minimum amount of Allyliso thiocynate (0.39%). RLM 528 gave the lowest iodine value (92.8), while RLM 82 had the lowest free fatty acids (1.1%). The highest sponification value was given by RLM 549 (181). RLM 137 exhibited the lowest peroxide content (2.1%). The least amount of sterol was observed in RLM 196 (0.28%).

The all possible correlations among these traits revealed that oil content had significantly positive correlation with sterol, whereas, protein exhibited significantly negative correlation with free fatty acids. Protein and sponification value showed negative and positive relationship with free fatty acids, respectively, but the correlation coefficients were non-significant. Similarly, protein, ash and sponification value exhibited positive association with sterol but the estimates of correlations were non-significant. It is concluded that there was sufficient variation in the mutants for the various quality traits and the possibility of combining the most desirable one's coupled with good yielding capacity in a single genotype was envisaged through multiple crossing programme.