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ISOLATION OF NOVEL MUTATION FOR DWARFING GENES FOR ENHANCING PRODUCTIVITY IN BRASSICA JUNCEA L

Indian mustard (Brassica juncea) is the second most important oilseed crops in India. Seed yield potential has stagnated to 1100kg/ha. Lodging and susceptibility to terminal heat are some of the limiting factors. Therefore, development of dwarf and early maturing varieties could help in increasing crop productivity. Varuna is a high yielding variety used as a national check but it is tall and late maturing. Seeds of parent variety 'Varuna'were treated with 1000 Gy dose of Gamma rays. A total of 3752 M2 population was raised from 150 M1 progenies. One progeny segregated as tall and dwarf plants. Progeny of dwarf plants was raised in M3 generation and found true breeding genotypes were selected. Their breeding behaviour was also studies in M4 generation and the dwarf mutation was confirmed. It was compared with parent and quantitative data was recorded. The plant height was reduced to 93 cm and maturity to 70 days compared to 168 cm and 130 days of the parent respectively. However, the total number of siliquae was increased to 306 as compared to 263 in the parent. Seeds per siliqua remained the same but seed yield per plant has increased. The mutant has yellow seed coat colour with increased oil content (41%) and reduced erucic acid content of 25%. Thus, there are more than one mutation in the same plant or it could be pleiotropic effect. It was also used in breeding programme and large number of desirable recombinants with earliness and high seed yield potential has been isolated. Thus, reduced plant height and earliness have not hampered the yield potential and these plants could be suitable to avert the limiting factors. This is the first report on induced mutations for dwarfing genes in Indian mustard.

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