

Qualitative and Quantitative Traits Associate Genetic Variability of Soybean (Glycine max) Mutants for Expedited Varietal Improvement Program

ABSTRACT

Background: Soybean is an excellent source of protein, also richer in oil than most legumes, making them a good source for vegetable oil and biofuels. Among various difficulties the maturity period of existing soybean varieties is the main hindrance of utilizing this for the existing cropping system. The narrow genetic base of cultivated soybean varieties and germplasm limit the scope to utilize directly in the breeding program. Methods: Mutation breeding is one of the techniques that provide large genetic diversity from a single source. To broaden the genetic diversity Binasoybean-3 and Binasoybean-4 were imposed to different doses of gamma radiation. The mutants were selected based on their agronomic performance and grouped at five different clusters at M5 generations. Maximum selection pressure was done during maturity period with protein and oil content. Result: Finally, eight mutants were selected for the advance breeding program, whereas mutants SM-03-15-5 mature within 90 days, containing 38% protein and 18.4% oil content will be considered directly for further steps of varietal release system.