

Variability in M₂ Generations and Characteristics of Advanced Mutant Lines of Rapeseed (*Brassica napus* L.)

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ABSTRACT Commercial varieties of rapeseed grown in Kenya have various production constraints. Mutation breeding has been used globally to develop varieties with desirable traits. The objectives of the studies were to identify the best level of irradiation for creating variability in M₁ and to characterise selected M₁ and M₂ mutant lines. M₁ generations of three varieties of rapeseed which had been irradiated at various levels were planted in blocks. M₁ plants were selected at random and data taken on plant height and pods per plant for each level of irradiation. M₂ lines selected based on earliness were planted and data was taken on various characters. Observations were also made on M₁ lines. There were significant (P<0.01) differences between the levels of irradiation in the number of pods per plant and significant interaction (P<0.01) between varieties and levels of irradiation for pods per plant. Association among the parents and M₂ mutant lines revealed by the PCA indicated that the M₂ mutant lines had higher genetic diversity. Genotypes that were distinctly different from the parents were observed at M₂. Mutation breeding was effective in creating variability and in the development of new plant genotypes that may be of agronomic value.