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MUTAGENIC EFFICIENCY OF GAMMA IRRADIATION
IN TWO SOYBEAN VARIETIES

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ABSTRACT

Efficiency of gamma irradiation on certain characteristics such as seedling height and dry weight of Amsoy-71 and Calland soybean varieties has been measured considering to use this mutagen effectively in mutation breeding. A greenhouse experiment was conducted using different doses of gamma irradiation (0 to 70 krad) and two soybean varieties. All treatments were carried out in 5 replications and consisted of 50 seeds. Seeds were sown in pots and plants were grown under climatically controlled conditions. Seedling height measurements were made 14 days after the emergence when the first leaf has stopped its growth and dry weights were measured after 5 weeks of growth. ED₅₀ (Effective dose) values were also calculated in order to find out the suitable irradiation doses to be used in mutation induction for both varieties. The results showed clearly that seedling height and dry weight were affected by γ -irradiation and, as compared with the control, both of them were reduced as the dose was increased with some differences between the varieties. The soybean varieties also showed differences in terms of ED₅₀ (Effective dose) values and this value was found for Amsoy-71 as 16 krad, whereas for Calland as 20 krad. These results were in agreement with the literature values.