RADIOSENSITIVITY OF TURKISH SESAME CULTIVARS TO GAMMA RAYS

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ABSTRACT

Seeds of four sesame cultivars need small steps for improvement, i.e., Muganlı-57, Özberk-82, Çamdibi and Gölmarmara, were irradiated with the 150, 300, 450, 600, and 750 Gy doses of gamma rays. Irradiated seeds were sown alone with their controls in the field in order to study the response of the cultivars to irradiation. Survivals (two weeks later than the first irrigation), plant height before first flowering and days to first flowering were recorded. It was found that these traits, when measured in proper time, are applicable to dose-response studies for practical mutation breeding purposes. The results revealed that with increasing doses survival and plant height decreased but flowering was delayed. Although growth reduction measured in plant height suggested to use higher doses, i.e., 600 or 750 Gy, survivals were very low in these populations as well as high number of morphophysiological anomalies and chlorophyl mutation-like modifications in chimeric structure. Considering all these results it was concluded that the 300 and 450 Gy doses are highly effective in inducing primary physiological damage in the M_1 of Turkish sesame cultivars.