

ABSTRACT

RADIATION EFFECTS ON *ARABIDOPSIS THALIANA*

The effects of ionizing radiation on *Arabidopsis thaliana* were investigated using 6MV gamma rays produced by a linear accelerator. Photosynthesis and respiration rates, chlorophyll fluorescence f_v/f_m ratio and yield, plant height, total leaf area, stem mass, leaf mass, and above-ground biomass were measured for analysis. The statistical analysis of the radiation effects regarding four different total doses (0.5Gy, 5Gy, 50Gy, and 150Gy), two different treatment types (single and fractionated), and three different life stages at irradiation (15-day, 20-day, and 25-day old) revealed the details of dynamic responses of *Arabidopsis thaliana* to radiation exposure. The results suggest that plants like *Arabidopsis* are capable of being utilized as a biosimulator and further studies can be performed on specific areas in order to evaluate the effects of ionizing radiation for a practical application.

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