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Induced of plastid mutations in soybean plant (*Glycine max* L. Merrill) with gamma radiation and determination with RAPD

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Abstract

The aim of our study was to induce with radiation of atrazine resistant and tolerated mutants in Coles, Amsoy-71 and 1937 soybean varieties. Atrazine that is photosynthetic inhibitor is the most important herbicide of S-triazin group, and shows toxic effect on soybean plant. For the improvement of the atrazine resistant plants with mutation breeding, the seeds belonging to the three varieties were irradiated with 200 Gy of gamma radiation dose. The irradiated seeds were sown in the field and at the end of harvesting season, every pod at node situated on the main stem was picked up separately and M₂ generations were obtained. At the plants, which were obtained from M₂ generation, chlorophyll mutants were determined and atrazine selection was made. The percentage of chlorophyll mutants for Amsoy-71, Coles and 1937 soybean varieties were found as 1.07, 1.48 and 1.32, respectively. At the end of atrazine selection, the percentages of atrazine resistant plants for Amsoy-71, Coles and 1937 soybean varieties were 0.80, 0.60 and 0.53, respectively. The percentages of atrazine tolerated plants were 1.07, 1.18 and 1.05, respectively as well.

In our research; the differences among the mutants replying to atrazine in various concentrations were examined by using RAPD procedure as the molecular marker techniques in comparison with polymorphism. In the study done by using 14 primers; according to the amplification results, the differences between atrazine resistant plants were shown.

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