

PROMISING INDUCED MUTATIONS IN SOYBEAN VARIETIES RESISTANT TO LEAF SPOT FUNGI*

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Abstract

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Irradiated seeds (20 krad of gamma rays) of three soybean varieties, Calland, Williams and Columbus, were sown (M_1) on the farm of the Faculty of Agriculture, Shebin El-Kom, Egypt. The M_1 plants were kept free from disease and insect infection. Different morphological mutations were recorded visually and the seeds of the phenotypically normal plants of each variety were harvested and sown in bulk populations for the M_2 generation. The plants were subjected to heavy artificial epiphytosis with two physiological isolates of *Alternaria alternata* and *Drechslera australeinsis* in two separate fields. The seeds of the M_3 and M_4 selection progenies were sown in two separate disease nurseries as line to row. Susceptible and abnormal plants were removed. Single plant yield components were determined for the selected mutants. The number of resistant mutants of the cultivars Calland, Williams and Columbus was 16, 21 and 18 (M_3), which were screened to 12, 12 and 11 mutants (M_4), respectively. Further screening was carried out and the data revealed that six, six and five mutants, respectively, showed resistance in the M_5 generation. The mutants of M_6 and M_7 were grown in a randomized block design surrounded by the susceptible parents as a border. This border was inoculated with the two fungal isolates to serve as disease spreaders. The results obtained in M_7 revealed that one and four mutants proved their superior yield and disease resistance over the parent cultivars Williams and Columbus, respectively.

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