**UDC: 635.655:575.224.46.**
**Malii A.P.**
*Institute of Genetics, Physiology and Plant Protection, 20 St., Pădurii, Chisinau, MD-2002 Republic Moldova*
**e-mail: malii.aliona@mail.ru*

# INDUCED MUTAGENESIS IN SOYBEAN (*Glycine max* (L.) Merr.)

Food resources of the modern world are strained due to the increasing population. On this, several methods have been tried by scientists to augment food production. Apart from the quantity of food, quality is also a critical issue to maintain nutritive values with increased potential for yield. Seeds are an important part of the plant due to their role in reproduction and storing food reserves in the embryonic cotyledons. Legume seeds are major resources of human food and animal feed with their unique nutrient compositions including oil, protein, carbohydrates, and other beneficial nutrients, and also provides biological nitrogen fixation by forming a symbiotic relationship with rhizobia. Soybeans are unique in legumes with a seed content of about 40% protein and 21% oil on a dry matter basis. It is the most widely grown oil seed crop in the world and represented 56% of the world's vegetable oil seed production in 2013. The animal feed industry uses about 70% of soybean meal due to it being high in protein with a good amino acid balance. Soybean meal provides more energy than any other plant protein source. At present, improvement of major food crops in the world rests majorly on mutation. This comes either naturally or through irradiation. So crops with restriction in genetic variation require mutagenesis or induced mutation to create desirable and heritable variations in them. One of these methods is the gamma-ray-induced mutagenesis. This method was used in our researches performed at Institute of Genetics, Physiology and Plant Protection of the Academy of Science of Moldova, in order to obtain the valuable initial material for soybean. The used biological material was two cultivars ('Zodiac' and 'Alina') of soybean, approved in Moldova that was treated with gamma rays doses of 100, 150, 200 and 250 Gy. The result of gamma-ray-induced mutagenesis was the obtaining the $M_4$-$M_8$ generations soybean for the 2017 year. From these generations were selected mutants that were highlighted with a wide range of variability of agronomic characteristics: precocity (108-133 days), plant height (74.5 to 102.5 cm.), the number of nodes on the main stem (9-21), height of pod insertion, number of pods (63-132), the number of seeds in the pods (124-328), yield per plant, shape, color and weight of 1000 seeds. The best effect of the mutagenesis was obtained in the range between 100 and 200 Gy. Mutants obtained have precious traits and will be used for breeding of soybean in R. Moldova. So from the above, it is obvious that the gamma radiation is useful in the induction of genetic variability, that present a large spectrum of mutations and a high frequency of their manifestation.