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INDUCED MUTAGENESIS ON GROUNDNUT (*Arachis hypogaea* L.)

Peanut, also known as ground nuts are consumed by many people around the world, being characterized by the impressed nutritive value. The high content of minerals like zinc, magnesium, copper, potassium or phosphorus, also fibers and antioxidants make peanuts a source of nutrients that can help the human body to remain healthy and fit. Today, the importance of peanuts increased a lot; they are one of the most important crops in the world, being used in food, in cosmetics and industry. Peanuts breeding are conducted according to the seed destination. Peanuts that are intended for oil extraction must have a debarking rate more than 72% and oil content more than 50%. For the fresh or roasted peanuts for human nutrition the content of oil should be less than 45% and weight more than 150gr/100 pods. According to the agronomic particularities peanuts have reduced requirements to soil (good results on sandy soil), require smaller amounts of fertilizers, enriches the soil with nitrogen (above 100kg/ha) due to bacterial nodules on the roots. The countries with the highest number of population – China and India – together produce over 50% of the global peanuts harvest. The peanuts cultivation is carried out in warm regions, sunshine, with moderate rainfall, but also in temperate regions, which includes Moldova too. In our country the peanuts are cultivated due to the high adaptability of this plant and the presence of early varieties homologated in Moldova ('Fazenda I', 'Kovarschii 17', etc...). Peanut can be considered as one of the most advantageous and cost-effective crop due to the production that can be obtained and multiples fields of use of obtained harvest. For this reason peanuts present a great interest for scientific researches performed at Institute of Genetics, Physiology and Plant Protection of the Academy of Science of Moldova. But climatic changes that are produced in last years at global and regional levels intensified the frequency of various climatic risk factors as: sudden changes of temperatures, a very long drought period, disastrous floods, short and warm winters, etc., which often diminish the value of the production. The main goal of research is to improve the quality of existing varieties, create early varieties, with high food productivity, high resistance to disease, pests, drought, and different climatic risk factors – which present a major problem of Moldovan agriculture. The experimental mutagenesis methods are successfully used in plant breeding for obtaining the valuable initial material. One of these methods is the gamma-ray-induced mutagenesis. The gamma radiation is useful in the induction of genetic variability, that presents a large spectrum

of mutations and a high frequency of their manifestation. This method was used in our researches in order to obtain the valuable initial material for peanut breeding. The used biological material was peanut 'Fazenda I', approved in Moldova, that was treated with gamma rays doses of 100, 200 and 300 Gy. The result of gamma-ray-induced mutagenesis was the obtaining of peanut mutant forms with significant increase of oil and protein content. The biochemical analysis of allowed selecting the forms that are evidenced by a high oil content: from 56.57% to 54.15% ('M101', 'M107'), and protein: from 27.86% to 28.52% ('M124', 'M91'). The obtained results confirm the already known fact that the oil content in seeds is in negative correlation with protein content. It should be noted that in case of peanuts, the oil and protein content depends on the climatic conditions and is characterized by specific genotype variability for each variety. The analyses of the mass of 100 seeds of studied forms attested that characterized by high productivity. The mass varied from 51.2gr to 54.1gr ('M91', 'M96'), while in the control the mass was 50.8gr. Thus, based on the above, it is clear that the weight varies between the forms and controls and largely depends on the climatic conditions of the year. The results of research in the field of gamma ray induced of mutations have allowed to determine the important features of mutational variability and by careful selection of peanut, there were obtained the mutant forms with high oil content, protein and productivity. The obtained forms represent a great interest for peanuts breeding and reproduction in Moldova.

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INVESTIGATION OF THE EFFECTS OF ASCOCHYTA (*Ascochyta boltshauseri*) ON BIOCHEMICAL PARAMETERS OF BEAN SAMPLES

Bean is used as a rich with protein seed, as a green fertilizers, moreover its floral forms are used as ornamental plants and depending on a purpose, cultivation method changes. Bean are high with protein (20.4-31.7%), non-nitrogen substances (50-60%), fat (0.7-3.6%), ash (3.1-4.6%) and cellulose (2.3-7.1%). The absorption rate of protein which is included in bean seed constitutes 86%, which is higher than that of lentil and pea. Protein of bean contains tyrosine, tryptophan, lysine, and other aminoacids that are essential for the human body. Bread included 5-10% of white flour bean, which is particularly useful for children, is nutritious and tasty in comparison to ordinary wheat bread. The bean is often used as a diet food. Blue bean seeds contain up to 6% of protein and vitamins C, A, B. Just before of germination period of bean the leaves of the plant contain 3-16% lemon acid. The usefulness of protein includes in bean