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BIOLOGICAL FERTILIZER AS A SOURCE OF ENVIRONMENTAL POLLUTION

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Abstract:
One of the current global problems is the growing population and providing them with ecologically clean food products. This will further increase the demand for agricultural products. The new biological fertilizer intended to be used in agriculture pollutes the environment, especially the air, open water bodies and soil, and at the same time, it can have a negative impact on human and animal life. Because biofertilizers also affect agricultural products, the production of safe products is important for public health. After application of the drug, it was determined that the amount of residue was retained in the plants for 3-8 days, and this amount depended on the method of application of the drug. Especially in potatoes, the most residual amount for 8 daysIt was determined in the amount of 2.9 mg/kg.

Keywords: Environment, biological fertilizer, preventive toxicology, global problem, ecology, soil, open water bodies, crops, potatoes, permissible concentration. organic pure food.

Introduction

Magriculture in our country grew by 4.1 percent in 2023. Exports in this area amounted to about 2 billion dollars. But the existing potential is much higher than that.today in the regions where about 50 percent of the country's population lives, which make up 4 quarters of the economy and about 3.5 million people. Acceleration of relevant reforms in this field, where people are busy, will certainly serve to increase the well-being of the population of our country and ensure stable economic development in the future. It is no secret that the increase of various diseases and pests in agriculture causes great damage to crops and their yield [4.7.12.15]. Globally, 40-45% of the total planned harvest is lost due to damage caused by pests, including 16.9% by pests, 12.8% by various diseases, and the remaining 11-12% by weeds. Every year, 1 million tons of pesticides are used around the world. Observations show that only 1% of the pesticides used affect the target pests. The remaining part is deeply absorbed into the lower layers of the soil and is washed away by the flow of seepage water, water used in irrigation, precipitation water, accumulates in the oceans of the world through rivers and lakes, and harms the biosphere [2.3.5.16.]. As a result, the pesticides trapped in the soil layers are absorbed through the root system of plants, accumulate in plant organs, accumulate in the body of animals and humans that use them as food, and have a negative effect on the functioning of organs, systems of organisms, and glands that produce several hormones. The main ways of greening of agriculture are aimed at less use of chemicals due to the use of natural pesticides against pests [11.14.17].Today, in our country, consistent work is being done in the field of environmental protection, rational use of natural resources, improvement of sanitary and ecological conditions.In particular, the decision of the Cabinet of Ministers dated 3.06.2021 "On further improvement of the system for assessing the level of environmental pollution"343-**number**

decision makingdone[1]. Environmental pollution is a high content of physical, chemical or biological reagents that are not specific to the given environment, entered from outside and have negative consequences. Therefore, pesticides, mineral fertilizers used in agriculture to prevent environmental pollution One of the urgent problems of the present day is to study the state of preservation of the amount of residues in the environmental objects of dogs and plants when protection means are used. At the same timeproduction of ecologically pure products in the economy is one of the urgent problems of the present time. Cultivation of ecologically harmless crops, preparation of its products in accordance with general hygiene, technological and toxicological requirements during processing, cultivation of products that do not pose a threat to human and animal life are important in maintaining the health of the population [3.6.7.13].The degree of contamination of agricultural crops and livestock products depends on the ecological and toxicological characteristics of agroecosystems. The use of chemicals in agriculture, in particular various pesticides, mineral fertilizers and plant protection agents, causes a disturbance in the ecological condition of the soil. Therefore, when assessing the quality of food products and fodder, the standards of permissible concentration of harmful substances (REK) or permissible residue level (REQM) or maximum permissible level (MRED) are studied and established. Toxicants in food products and fodder are determined by chemical toxicological analysis. The only way to protect human health is to keep the residual amount of harmful chemicals in the environment and agricultural products within hygienic standards.In recent years, excessive use of nitrogen fertilizers has led to the accumulation of nitrates in the soil and in agricultural plant parts. In normal conditions, the amount of nitrate in a plant is 1-30 mg/kg, while in cultivated plants it is 40-12000 mg/kg [2.5.8]. The amount of nitrate accumulated in agricultural plants is 40-600 in watermelon, 80-270 in eggplant, 700-2500 in melon, 40-500 in green peas, 600-3000 in white cabbage, 1000-2700 in Beijing cabbage, 400-700 in zucchini, 40-980 in potatoes, 40-1400 in green onions, 60-900 in onions, 60-2200 in carrots, 80-560 in cucumbers, 160-900 in patison , 40-330 in sweet pepper, 1700-2500 in parsley, 600-900 in turnip, 200-4500 in beetroot, 10-1900 in tomato, 300-1300 in pumpkin, 400-2200 in dill and 40-300 in garlic onion [3.7]. According to experts, by 2050, the number of people on earth will be 9.6 billion. is expected to reach [3,5,7,9]. The average population is 1 billion. by 2050, 3 bln. is predicted to increase to the share of cultivated areas increased from 24% to 45.2% of the total cultivated areas. The growing demand for food quality, the deterioration of the ecological condition of the soil, and a number of other problematic issues require reducing the amount of chemical agents used in agricultural practice and replacing them with biological, or rather, microbiological preparations. At the same time, a number of changes are being implemented in order to ensure food safety, in particular, a number of works aimed at revising and improving the types of crops in the agricultural sector that produce basic food products are being carried out. There are many and various types of microorganisms in the soil. Bacterial preparations are used in agriculture to increase the composition and quantity of soil microorganisms and to enhance their activity. And bacterial preparations are living organisms that do not retain nutrients in their composition, but they quickly transfer the reserve nutrients in the soil to the mineral state and play an important role in the assimilation of atmospheric nitrogen, thus participating in improving the nutritional conditions of plants. . The most common bacterial preparations include nitragin, azotobacterin,

phosphobacterin and silicobacterin. Material and methods. The object of our research is the biological fertilizer "Yer malkhami". The study of the nature of toxicity and biological effects of biological fertilizers is carried out according to the methodological guidelines "To carry out studies on the basis of environmental bioinsecticides REK" and "Comprehensive hygienic assessment of new pesticides" "instructions" were used. New biofertilizer to accelerate the growth of plants, increase the yield, improve its quality, reduce the phytopathogenic microflora of vegetables, technical crops, potatoes, young fruit tree seedlings, seeds and seedlings of forest crops. It is intended for processing of chats before planting. Based on the above, we studied the impact of the new biofertilizer "Yer malkhami" on environmental objects, which is intended to be used in agriculture.

The results obtained. It was found that during the preparation of the working solution of biological fertilizer, the preparation of seeds and seedlings of agricultural crops, the drug pollutes the environment, especially the atmospheric air, the atmospheric air of the working environment, the open areas of the workers' bodies and special clothes. In particular, the respiratory threshold of the workers preparing working solutions of the drug was determined at the highest concentration in atmospheric air. During the treatment of seeds and seedlings, the drug was determined in the amount of 2.1±0.14 mg/m3 and 1.8±0.15 mg/m3 in the air of the working area. I.5 ±0.13 mg/m3 was determined in the air of the working area of "Yer Malakham" biological fertilizer during crop irrigation. When the drug was used in agriculture, the amount of residue in the air environment depended on the time of its use and is presented in the table below (Table 1).

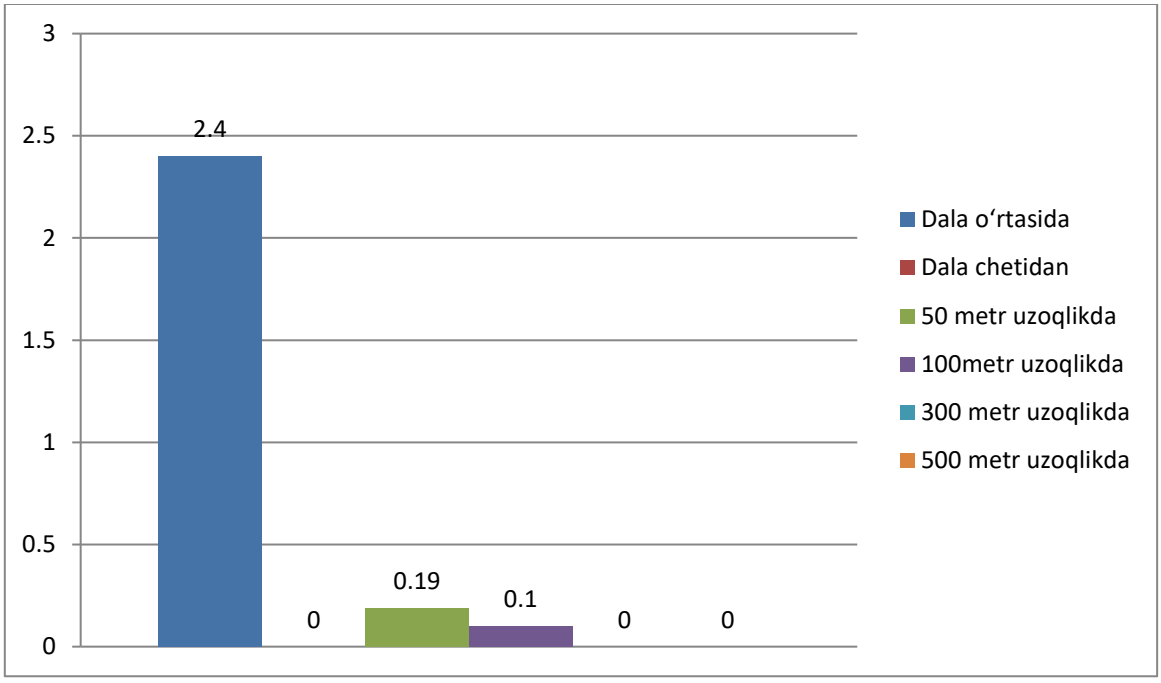

Table 1 The amount of "Earth ointment" in the air during application.

It was found that the hands and face of the workers who prepared the working solution of the drug were contaminated with the residual amount of the drug, 31.4 ± 0.21 and 10.1 ± 0.25 mg per 100 cm2 surface. Contamination of up to 21 mg was established. The amount of 0.35±0.018

mg in the pharynx and nasal cavities of the workers who were in contact with the drug, and 0.21±010 mg in the mucous membrane of the mouth was determined. The residual amount of the drug was determined in the lowest concentration among agricultural workers, entomologists and agronomists. 2.1-2.9 mg in the special clothes of agronomists, 1.2-2.1 mg in the hands, 0.96-1.4 mg in the face, 0.07-0.09 in the throat and nasal cavity determined in mg. The results obtained in this way show that when the biological fertilizer "Yer Malkhami" is used in agriculture, the atmospheric air and the atmospheric air of the working area are contaminated with the drug. The degree of pollution of environmental objects during the use of "Yer malkhami" in agriculture is presented in Table 2 below.

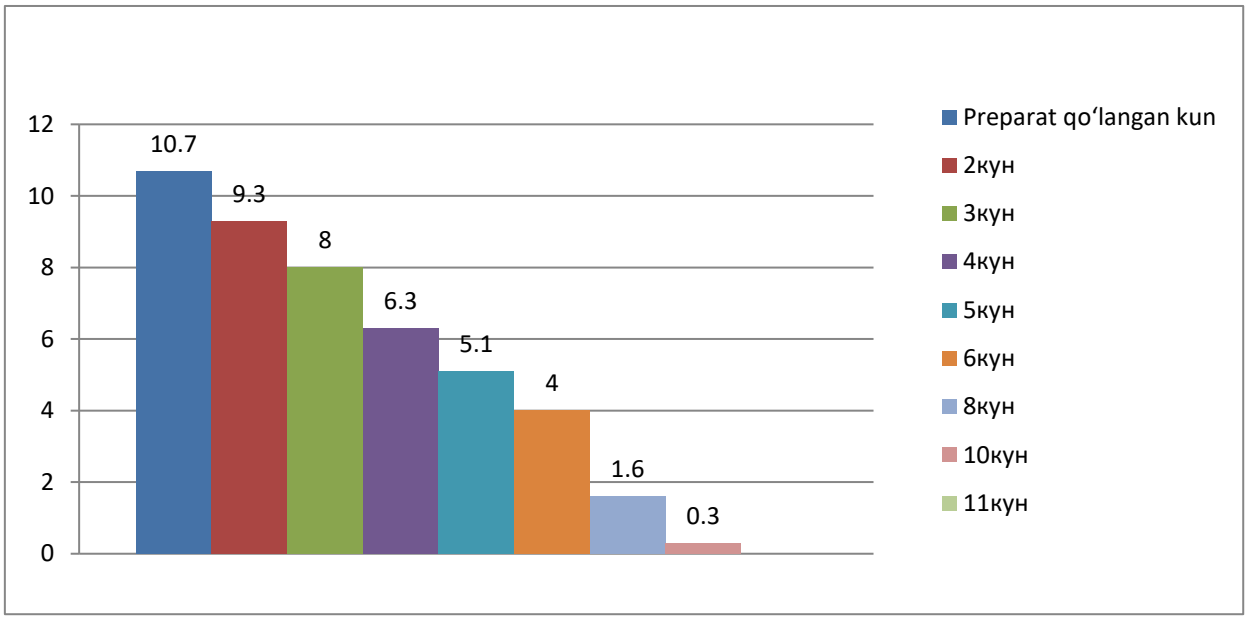

Table 2. Amount determined in environmental objects (mg/kg of processed soil) during the use of " Yer malkhami " in agriculture

When a new biological fertilizer is used in agriculture, the state of contamination of the environment by the substance depends on several factors, in particular, the method of its application, weather conditions and distance. Therefore, we investigated how long the substance can be preserved after application and obtained the following results (Table 3).

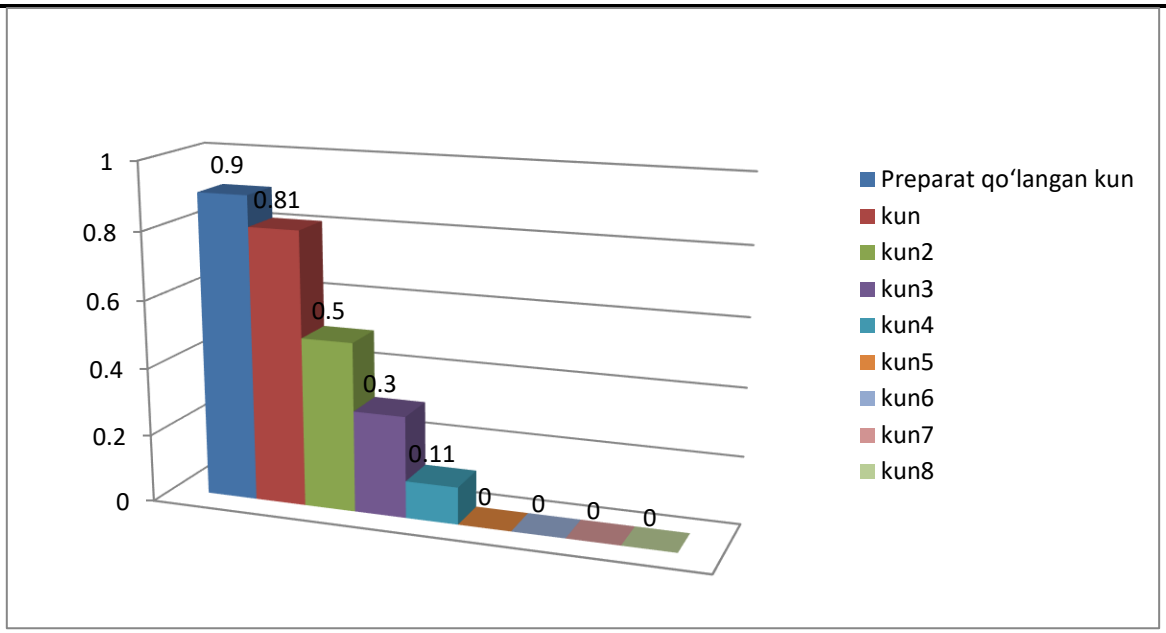

Table 3. Amount of " Yer malkhami " determined in environmental objects when used in agriculture (soil on the edge of the field mg/kg)

According to the information of the FAO organization, which ensures the security of agriculture and food under the UN, 30-35 percent of the harvest is lost every year in the world due to pests, diseases and weeds. This indicator exceeds 50 percent in some countries. Therefore, we investigated the retention of the substance in agricultural crops when the new biological fertilizer was applied, and the following results were obtained (Table 4).

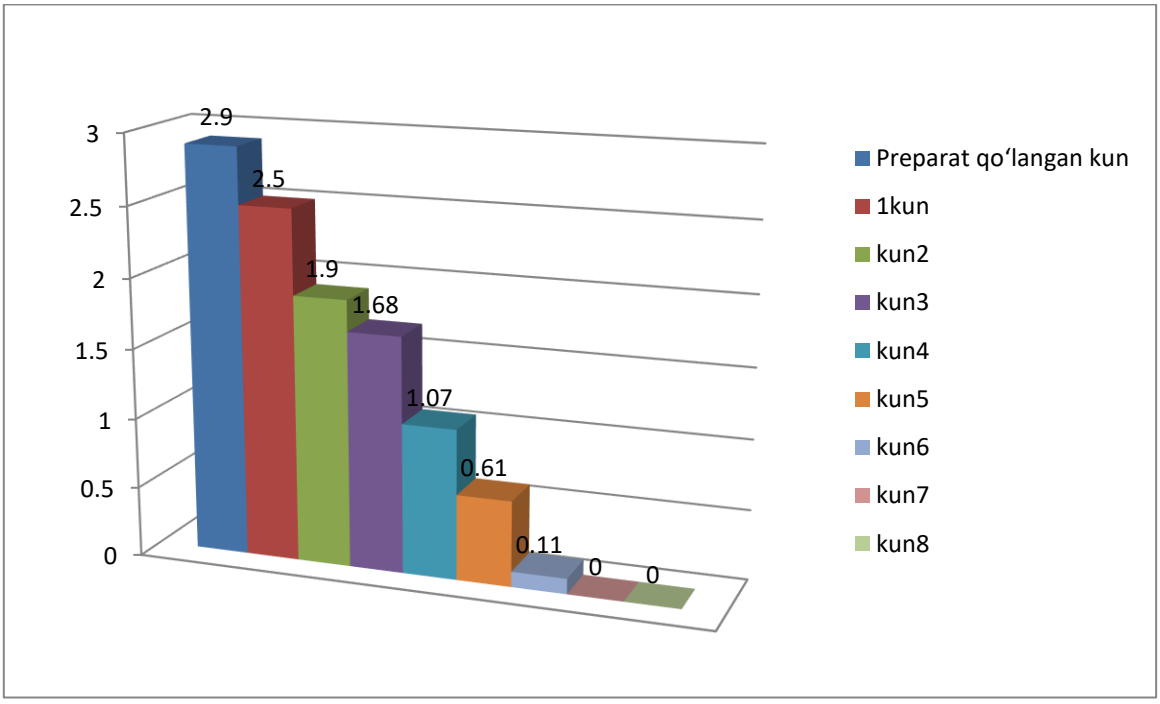

Table 4. The condition of preservation of food products during the use of "Yer Malkhami" in agriculture (potato mg/kg)

In the treated soil for 10 days, the residual amount of "Yer Malkhami" was from 10.7 to 0.3 g/kg, and in the soil at the edge of the field, for 5 days, the residual amount was from 0.9 mg/kg to 0.11 mg/kg. When treated with the drug 4.2 mg/l was detected in stream water, and in 3 days a small amount - 0.1 mg/l. During 3 days, it was detected at the level of 1.7-0.4 mg/kg and 0.3-0.07 mg/kg in the cotton leaf and fiber, and the residual amount of the drug was not detected in the cotton seed. In the potato plant, the residual amount of the drug was determined from 2.9 to 0.11 mg/kg for 8 days.

Summary

It can be concluded from the above results. "Yer Malkhami" biological fertilizer causes low and non-long-term pollution of environmental objects when used in agriculture. After application of the drug, it was determined that the amount of residue was retained in the plants for 3-8 days, and this amount depended on the method of application of the drug. Especially in potatoes, the highest residual amount was determined at the level of 2.9 mg/kg for 8 days.

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