Development of efficient and harm-free biological plant protectors against crop deceases that arise during cultivation is among today’s most important tasks in bio-technology. It should be noted that biopesticides based upon live germ cultures have certain advantages if compared with chemical pesticides: they are multifunctional, i.e. effective against a large variety of phytopathogenes and Nematodes, they can stimulate plant growth and enrich their mineral nutrition, and also they induce plant’s systemic resistance to pathogenic agents. Besides, biopesticides have a prolonged effect because the bacteria contained in them can colonize plants’ rhizosphere and phyllosphere and proliferate during vegetation; also they are considered to be ecologically friendly (antagonistic bacteria included into these preparations are natural inhabitants of plants’ rhizosphere and phyllosphere); they do not change the composition of natural associations; they are harmless for humans, animals or plants. Preparations on the basis of turf-derived products have similar characteristics: they are good growth stimulators for plants and protect them from some pathogenic agents.

As a base for biopesticides most promising appear to be rhizosphere bacteria Pseudomonas that are well known for their ability to synthesize antibiotics, siderophores, hydrolytic enzymes, etc. These bacterial substances are instrumental in efficiently inhibiting the development of such harmful crop diseases as root rot in crops and fruits, parenchymal and vascular lesions of potato and cabbage, leaf scorch, fruit spot, bacterial gummosis, necrosis of cortex, etc. [1, 2]. In addition to this, some Pseudomonas strains have acaricidal effect in that they can inhibit the development of Ditylenchus destructor, Globodera rostochiensis and Aphaelenchoides asteroncaudatus Nematodes [3]. It was just recently that we developed new biopesticides on the base of Pseudomonas bacteria: “Nemacide” (TU BY 300042160.011-2009) and “Aurine” (TU BY 300042160.012-2009), designed for protecting crops from phytopathogenic agents and for stimulating plant growth. Out tests showed that these biopesticides are highly efficient in application; however, one of their significant drawbacks is their short expiry period (2 to 3 months at room temperature), which imposes certain limits upon production volumes and product life.

It is known that combining biopesticides on the basis of live bacterial cultures with “Lignohumate” (humic fertilizer with microelements in the chelate form acting as a plant growth regulator and anti-stress agent) leads to prolonged storage periods of biopesticides: http://www.humate.spb.ru.

A considerable advantage of technologies involving bacterial and humic preparations is the reduced cost of chemical plant protection and dressing. It is important that this can also help solve a number of environmental problems caused by intensive farming. Making certain sectors of farming industry harm-free by introduction of new technologies of cultivation and protection of crops with biological methods - is the main approach towards improvement of environmental conditions and production of ecologically pure food. The main goal of the present work was to develop a new method of extending expiry periods of biopesticides “Nemacide” and “Aurine” by using Lignohumate.

Methods and materials

The ability of Pseudomonas aurantiaca B-162 and Pseudomonas putida U bacteria of inhibiting the development of phytopathogenic agents was studied by the method of the so called “delayed antagonism” [5].

Efficiency evaluation of “Aurine”’s action against cucumber disease was carried out on the premises of a green-house farm of the Republican Unitary Experimental Farming Enterprises ‘Vosckhod’ [‘sunrise’].