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TECHNICAL AND TECHNOLOGICAL PRECONDITIONS STVORENNYABIOTEHNOLOHIYI PRODUCTION MIKOBIOPREPARATIV

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Presents the relevance of the use of mushroom polysaccharides protecting plants from diseases and conditions of the development of biotechnology mikobiopreparatu production of fruiting bodies of fungi (Fomes fomentarius (L. Fr.), Gill.). Biotechnology includes harvesting of mushrooms, drying and storage, crushing, extraction, separation of the liquid fraction, mixing components.

Fungal polysaccharides, biotechnology, mushroom biomass mikobiopreparat, fruit body, mushroom extract size.

Formulation of the problem. The modern concept of implementing integrated and biological (orhanobiolohichnoho, organic, environmental, etc.) agriculture can be achieved when used in technologies of crops growing element of protecting plants from disease resistance inducers mikobiopreparativ-based active substances chitin-glucan and melaninovoho component. Analysis of scientific publications using glucans and chitosan (chitin derivative) demonstrates the high efficiency of these biopolymers in agriculture. In recent decades studying the properties of chitosan as a dietary substance received much attention in medicine, industry, agriculture, perfumes and so on. As a result of studying the properties of the biopolymer about the possibility of agriculture received positive results of the application to improve plant resistance to disease and other negative influences. [1]

Analysis of recent research. The main raw material for chitin and its products - chitosan - now remain breastplates crustaceans (crabs, shrimp, lobster, lobster). The results of international scientific research to create a biotechnology production inducers of plant resistance to negative influences from chitosan was the appearance on the market of foreign countries biopreparativ-

inducers of plant resistance to negative influences from chitosan - narcissus, ahrohit, hitozar, fitohit and others. Having a positive impact in creating biologics, widespread industrial use of holding back unstable

supply of raw materials due to the biological characteristics of certain types of crabs in their old high season for harvesting. For chitin and its derivatives has prompted scientists to search for other raw materials and the development of the technology of its production.

For chitin and its derivatives we have been chosen direction of development of the technology of biopolymers fruiting bodies of fungi. Mushrooms, other than chitin containing insoluble glucans meadow that are difficult to separate from hitynu. It is more profitable to get hityn hlyukanovi-and-hitozan hlyukanovi components [2].

Since fungal biomass hityn-hlyukanovi (HHK) and hitozan hlyukanovi-melanin complexes (HHMK) can allocate up to 10%; yield determined by the type of producer and growing conditions. Technical and economic efficiency of these biopolymers confirmed positive indicators recently and is widely used in the plant where hityn, i hitozan their derivatives are elisyteramy, which stimulate the immune system of plants to adverse impacts, increase their antifungal, antiviral and antibiotic resistance [3]. By working hypothesis, research has focused on the study of methods for dietary chitin-glucan complexes (HHK) of higher basidiomycetes (Fomes fomentarius (L. Fr.), Gill.), Which are common in the wild Ukraine widely.

The lack of research on the availability of production technologies fungal biopolymer with afiloforalnyh tree destroying fungi and biological products based on them and the biological efficacy of mikobiopreparativ based mushroom biopolymers and all Empty and quite deep scientific understanding of elisyterni properties mushroom HHK from higher basidiomycetes (Fomes fomentarius (L . Fr.), Gill.) in the fight against plant pathogens was the basis for the development of programs and research methodology.

The purpose of research - Development of technological bases from getting fungal glucans mikobiopreparativ fruiting bodies of higher basidiomycetes (Fomes fomentarius (L. Fr.), Gill.) To protect and stimulate the growth and development of plants.

Material and methods of research. The development and improvement process model mikobiopreparativ Biotechnology production and study of new scientific and technological solutions performed within the 1999-2014 biennium. Morphological indicators bodies of higher basidiomycetes (Fomes fomentarius (L. Fr.), Gill.), As a raw material for manufacturing mikobiopreparativ, determined in accordance with the technical specifications developed [4]. Humidity fruiting bodies after cleaning and drying were determined by known methods. Uniformity and degree of grinding fungal biomass was determined by the selection lattice gauge holes removable shredder. Indicators of mikobiopreparat,

determined by organoleptic and physical-mechanical standards of specifications, developed and approved in the prescribed manner [5].

The biological efficacy of various compositions mikobiopreparativ studied in most common crops by conventional methods.

Results. Prospective and actual raw material for chitin-glucan (HHK) and hitozan-hlyukanovi melaninovyh (HHMK) components that are the basis of the active ingredient mikobiopreparatu mikosan Chemical fertilizers are the fruiting bodies of higher basidiomycetes (Fomes fomentarius (L. Fr.), Gill.) [6].

The process of obtaining the active ingredient mikobiopreparatu consists of preliminary and main manufacturing operations.

1. The main technological operations: machining til fruit tree destroying hrybiv, chemical processing of raw materials, preparation components; blending components; packaging productsї.

2. Subsidiary operations: procurement of raw materials; preparation and storage of raw materials to its storage, sanitizing facilities; Preparation of reagents for extracting fungal material.

For developed scheme Biotechnology fungal polysaccharides, which are the main active substance mikobiopreparativє closed cycle. Remains giRights, arising from the use of solutioniin detergentsito merge in consumer channelizatsiS and used for the sanitization fabric utylizuєARE the domestic remnants into general landfill. The insoluble residue mushroomї biomass DrivesєARE in Zagrebirnyku i transferredєappear on the inshu technologistil ChNUiNiS, which uses the raw materials used for manufacturingiolohisubstantially activeї foodї additives "MiCotonou ". The resulting fungal biomass extraction, alkaline extract hearthєappear on the subsequent mixing with other ingredients and packaging the finished product in industrial packaging.

Fruit bodies afiloforalnyh tree destroying fungi (Fomes fomentarius (L. Fr.), Gill.) Harvested in the wild in accordance with the International Standard developed [4].

The process of harvesting mushrooms has the following operationsїSearch for fungi, separation from the substrate transport to the point of collection, sorting by specific signs, pre-crushing of large-sized mushrooms, drying, packaging, labeling and storage to furtherї processing. Search for fungi route scheme conducted in the most likely places - old deciduous or mixed forests (pine forests є relatively little in this respect), old forest belts i forest plantations near rivers and lakes; parks, storage timber under the open sky and so on. These types of fungi common in mertviy derevyni, but some may experience and live in trees.

Plodovi body can grow from the base of the tree VARIOUS height - to 10 meters i more because they are used for removal of industrial

ladder or long pole. Separation from substraktu large fruit trees til larger than 5 cm conducted using axes and smaller - knife. Large fruit comfortable viddilyaty body blows on shlyaptsi below or at the base.

Transportation to the point of collection collected mushrooms produced in existing Sack tare. If possible, accessible transport (tractors, carts, etc.) recommended to move on forest roads that collector filled bag weight 25kg could bring to transport and to empty containers. After picking fruiting bodies are transported to the point of harvesting or temporary storage.

With the delivery of mushrooms, pour them with container, clean fruit tila from wood waste, bark, leaves, HVOї i moss. When cleaning is carried out a preliminary assessment of visual quality fruit til i vidbrakovuyut pohryzeni or beetles їs larvae and plisnyavi or rot fungi. In accordance with established specifications requirements collected material sorted by type.

Immediately after sorting should be performed or thermal air drying fruiting bodies of fungi. Process drying operation is mandatory in the process.

Another manufacturing operations biotechnology production model mikobiopreparativ a mechanical grinding fruiting bodies of fungi (Fomes fomentarius (L. Fr.), Gill.). The technical solution to perform this operation ensures the most optimal use of the crusher production research and pilot plant equipment non-standard "small-sized crusher DM. 00.00.000RЭ. " Justification logistics grinding done by exploratory research as chopping the fruiting bodies of fungi (Fomes fomentarius (L. Fr.), Gill.) Using variables sieves of different diameters to determine the performance of the crusher and the homogeneity of the formation of fractional crushed fungal biomass.

Based on a comparative analysis of the use of variable diameter sieves 4 mm, 6 and 8 mm in the process of crushing the fruiting bodies of fungi (Fomes fomentarius (L. Fr.), Gill.) Birch collected and brought to a moisture content of 11-15 is recommended to use a variable diameter sieve 6 mmWhich was confirmed by the extraction of biomass. Subsequent manufacturing operations in biotechnology production model is mikobiopreparativ extraction of fungal biomass for alkaline extract. To perform the extraction based on the analysis of means-reactors and previous studies suggested an industrial reactor, which lets you adjust settings and parameters extraction, under conditions of mass balance changes mushrooms components and materials and the corresponding period of extraction. The basis of obtaining chitin and its derivatives with mushrooms put them leaching technology with the use of liquor by extraction of fungal biomass.

After extraction liquid alkaline extract of mushrooms should be separated from the insoluble residue fungal biomass. To this end, in the process using filtering process operation by using special filters or centrifuges. The final process operation is mikobiopreparatu production mix resulting from alkali mushroom extract components that contribute to better preservation of biologically active substances and increase its biological effectiveness. Thus, the mikobiopreparat based on alkaline extract afiloforalnyh mushrooms, which was supplemented with additional components and trace elements that the organoleptic and physico-mechanical indicators must meet the following specifications and standards in the table. 1.

1. organoleptic and physico-chemical characteristics mikobiopreparativ.

Indicator	Description and limits	
	Mikobiopreparat seed	Mikobiopreparat growing
Appearance	Water-soluble concentrate dark brown or black in color with a characteristic smell of ammonia, without foreign inclusions and sediment	Water-soluble concentrate dark brown or black mushroom with a characteristic odor, without foreign inclusions and sediment
Volumetric weight, g / cm3	1.1-1.2	1,0-1,05
The reaction solution pH	8-9	11-12
Solubility in water	Easily soluble in any spivvidnoshenni	
Dry matter, not <%	3	

Ready mikobiopreparat packed in containers and transferred to the warehouse or directly to producers. Extract from chitin elisytornu showed high activity. Based on its established mikobiopreparaty two appointments for growing organic crop production special raw material zones - for pre-treatment of seeds, bulbs, tubers, roots of seedlings and saplings, and - for the treatment of plants during growth.

Conclusions

1. Relevant and promising area of plant protection from diseases is the stimulation of plant defense mechanisms using mikobiopreparativ based on chitin-glucan complex of fungal origin.

2. The main raw material production mikobiopreparativ proposed and investigated fruiting bodies of fungi afiloforalnyh natural origin (Fomes fomentarius (L. Fr.), Gill.), Growing on birch, poplar and alder.

3. Researched and developed biotechnological production process mikobiopreparatu fruiting bodies of fungi are new scientific solution in the field of plant protection agents and is commercially competitive and attractive.

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Yzlozhenы Relevance of application hrybnыh polisaharidov in zaschyte plants boleznej from biotechnology development and production predposыlky mykobyopreparata IZ plodovыh phone mushrooms (Fomes fomentarius (L. Fr.), Gill.). Biotechnology vkljuchaet workpiece mushrooms, drying and storage s, yzmelchenye, эkstraktsyyu, otdelenie zhydkoy fraction, smeshyvanye components.

Hrybnыe polysaharydы, of Biotechnology, hrybnaya byomassa, mykobyopreparat, plodovoe Body, hrybnoy эkstrakt, Dimensions.

Set out the relevance of the use of mushroom polysaccharides in plant protection from diseases and conditions develop biotechnology mikobiopreparat production of fruiting bodies of fungi (Fomes fomentarius (L. Fr.), Gill.). Biotechnology includes a mushroom harvesting, drying and storage, crushing, extraction, separation of the liquid fraction, the mixing of the components.

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