All kinds of accumulated materials should be crushed in principle, and increasing the contact area is conducive to decomposition. The materials must be properly matched with wet and dry materials. Too much wet materials will make the compost sparse and airtight and will easily stink. If there are too many dry materials, the compost will not rot and will not turn into fertilizer.

The compost should be selected in a location with a higher terrain, sunny leeward, close to the water source, and convenient transportation and application. It can be composted by digging a hole or using a device (such as a compost bin), if conditions permit， compost toilet can be set up.

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ECOLOGICAL IMPORTANCE OF *TRICHODERMA* SPP. AND THEIR SECONDARY METABOLITES FOR ORGANIC FARMING

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Summary. *The development of organic farming around the world and in Belarus in the last 10–15 years has shown the importance of studying and introducing biological methods for combating plant diseases. For this, studies of various microorganisms are carried out throughout the world, which can become the basis for modern plant protection products that do not damage the environment and human health.*

The widespread occurrence of fungi of the genus Trichoderma attracted our attention due to the possibility of isolating and studying them to identify new highly active strains with a protective function, as well as useful for agriculture. For example, many people, including my family. are engaged in composting plant residues in order to obtain organic fertilizer. Adding Trichoderma to such a compost would speed up its maturation and also give it the property of a plant protection product.

Therefore, the goal of our work was to create a collection of *Trichoderma* strains of various origins and conduct a comprehensive study of it in order to select isolates that are most promising for crop production. To achieve this goal, we solved a number of tasks:

1) take samples of soils and other materials for the isolation of *Trichoderma*;

2) carry out the isolation of mushrooms from the collected sources and take samples of *Trichoderma*;

3) to select homogeneous morphotypes of *Trichoderma* to create a collection of isolates;

4) study isolates for a complex of morphological characters;

5) study the growth rate of the collection isolates using different carbon sources;

6) to evaluate the antagonistic activity of *Trichoderma* isolates from the working collection in relation to a number of plant pathogens;

7) to identify in the collection of *Trichoderma* isolates producers of siderophores;

8) to evaluate the resistance of *Trichoderma* isolates to some fungicidal preparations;

9) to study the ability of *Trichoderma* isolates to grow at 37o C.

10) to characterize the diversity of the collected collection of *Trichoderma* isolates according to the complex of the studied traits and to highlight the most promising for use in plant growing.

We have used a number of standard microbiological methods to locate, isolate, collect, maintain and preserve isolates of *Trichoderma* fungi. We also used special published methods to describe isolates and study their special characteristics: growth rate on various substrates and under various other conditions, the ability to release secondary metabolites, antagonism towards phytopathogenic fungi.

As a result of the experimental work, we have created a collection of fungi of the genus *Trichoderma* and described it according to different parameters. We have also identified the most promising isolates for creating a biological plant protection product.

The scientific novelty of the work lies in the collection and study of new, previously unexplored *Trichoderma* isolates.The practical and economical significance of the work lies in the collection and assessment of a wide range of *Trichoderma* isolates for some important economic traits, which can be used in various directions, for example, to protect plants from diseases and stimulate their growth.

Based on the data obtained during the execution of the work, we can draw the following conclusions:

1) Well-decomposed wood, fruiting bodies of mushrooms, as well as the soil are inhabited by mushrooms of the genus *Trichoderma*. The fruiting bodies of the present tinder fungus are the richest source of a variety of fungi of the genus *Trichoderma*.

2) The created collection of *Trichoderma* isolates has a significant diversity in the morphological characteristics of the mycelium. The distribution by morphological groups is heterogeneous.

3) The collection contains both slow and fast growing isolates. At the same time, the growth rate of mycelium in isolates differs depending on the period from the beginning of growth. Isolate 35 has the highest growth rate, which is not inferior in this indicator to industrial strains from commercial preparations.

4) Isolates in the collection exhibit a different capacity for cellulose utilization. The best growth rate on the medium with cellulose was shown by isolate 22, which is not inferior to isolates from commercial preparations.

5) Wood, fruiting bodies of fungi, as well as soil are inhabited by fungi of the genus *Trichoderma*.

6) Some isolates from our collection are capable of synthesizing siderophores.

7) Many isolates are capable of inhibiting the growth of soil pathogens. Perhaps this is due to the fact that fungi of the genus Trichoderma are soil fungi. The pleasant result was that Trichoderma suppressed phytophthora well.

8) The growth of isolates at a temperature of 37 degrees Celsius shows the impossibility of using such isolates for the needs of crop production.

The main practical conclusion is the creation of a prototype of a commercially viable biological product that can be widely introduced into the practice of organic and conventional farming through its commercialization.

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РЕВЕРСИВНАЯ ЛОГИСТИКА И МЕДИЦИНСКИЕ ПРЕПАРАТЫ

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Summary. *The article examines the importance of reverse logistics from the point of view of ecology, and also highlights the problem of reverse logistics in the medical field, namely in the field of handling medical drugs. As part of the study, a survey was conducted to find out whether the population is aware of the harm caused by improperly disposed medical waste and the options for their proper collection. The authors have proposed ways to involve the population in solving this problem.*

Реверсивную логистику зачастую воспринимают как «нежелательный элемент» в управлении цепочки поставки. Она ассоциируется с неизбежными издержками бизнеса, а также оценивается, как управленческая уступка или же чересчур «человечную» инициативу. Но вместе с тем налицо и другая ситуация. В настоящее время все больше и больше компаний рассматривают обратную логистику как необходимую часть эффективной стратегии увеличения доходов. Однако реверсивная логистика – это не только прибыльно, но и экологично.

Ссылаясь на определение Э. М. Букринской «Реверсивная логистика – это широкое понятие, охватывающее логистический менеджмент и деятельность по обеспечению процесса возвращения ненужной или использованной продукции обратно производителю с целью утилизации или рециклинга.

При организации движения возвратных потоков особое внимание уделяют медицинским (клиническим) отходам.

В 1979 г. Всемирная организация здравоохранения (ВОЗ) отнесла клинические отходы к группе особо опасных и указала на необходимость создания специализированных служб по их уничтожению. Базельская конвенция о контроле за трансграничной перевозкой опасных отходов и их удалением от 22 марта 1989 г., вступившая в силу в 1992 г., выделила 45 видов опасных отходов.

В этом списке на первых местах находятся «Медицинские отходы, полученные в результате врачебного ухода за пациентами в больницах, поликлиниках и клиниках», «отходы производства и переработки фармацевтической продукции», «ненужные фармацевтические товары, лекарства и препараты».

По данным 20-летнего исследования Международного союза охраны природы в Мировом океане обнаружены фармацевтические загрязнения, из них около 150 лекарственных средств. Источниками загрязнений называют отходы предприятий, отходы потребителей и неправильную утилизацию отходов.

По данным Национального статистического комитета РБ тенденция к увеличению образования отходов в течение последних 10 лет сохраняется: в 2005 году отходов производства – 49 865 тыс. тонн, в 2019 году – 60 836,8 тыс. тонн. Из них медицинские отходы – 40 033 тыс. тонн.

Согласно официальной статистике три четверти белорусов (74,2 %) выбрасывают просроченные лекарства в мусорное ведро, не вскрывая упаковку, примерно каждый пятый человек (19 %) предварительно вскрывает упаковку, 8 % – вскрывают упаковку и смывают лекарства в канализацию, 7 % – стараются отдать препараты знакомым до истечения срока их годности.