

Identification and phytotoxic properties of fungi genus *Trichoderma* from ancient lands.

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Different species of genus *Trichoderma* are applied in many areas of human activity. From them are received a complete complex of hydrolased enzymes, such as cellulose and others, used in the food processing industry, in the manufacturing of washing-up liquids, and for transformation of waste products containing cellulose, to glucose. Except for enzymes, interest is represented with antibiotics of fungi of this genus. From their basis are received preparations for the biological control of illnesses in plants and biological weeding. The following was tested: somatic incompatibility reaction, antagonistic activity against phytopatogens, growth stimulating activity for barley, corn, rye, wheat, potato, cucumber, tomatoes, pepper, decorative cultures, pine seedlings and extracellular enzymes in strains of *Trichoderma* species was tested. We acquired stems of fungi of the genus *Trichoderma* from burial grounds from the centuries 800-600 BC, on the territory of the Republic of Tatarstan, Russian Federation. The purpose of our research was to look for stems, perspective for the manufacture of biological products. In order to reach this goal we identified, classified and systematized allocated stems with the use of morphological and molecular-genetic methods and investigated their physiological-biochemical properties. Descriptions of the appearance of colonies and their morphology have been recorded in a before-stated work developed by identifiers Samuels, Chaverri, Bissett. Molecular-genetic research was carried out with use of method PCR (RAPD-analysis). On the basis of the received results investigated stems have been related to species: *Tr. longibrachiatum*, *Tr. koningii*, *Tr. harzianum*, *Tr. asperillum*, *Tr. citrinoviride*, *Tr. atroviride*, *Tr. oblongisporum*, *Tr. spirale*. Classification of these stems was done with the help of an earlier specially developed program. Also have been investigated antagonistic activities and phytotoxic properties, enzymatic activity of the complex exohydrolase (xylanase, protease and cellulase activity) of allocated stems. Their kinetic parameters were also determined. As a result of *Trichoderma* – plant interaction study host-specific and organotropic species with negative and positive influence on the plants were revealed. The bacteria species as *Azotobacter* symbiotrophes were detected. They were shown to increase the azotfixation in black soils after fungi introduction. Introduction of 2 isolates of *T.asperillum* was shown to increase to azotficsation. The isolates of *T. koningii* and *T. harzianum* were able to raise respiration activity in soil at 2,5 times against control. As a result of our work have been selected stems, perspective for biotechnologies.