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The fruit body and mycelium extracts of *Pleurotus ostreatus* suppressing growth and reducing virulence causative agent of potato ring rot

Nadegda V. Filinova,[+] **Lidia A. Lomovatskaya**,*
Tatiana G. Gornostay, and **Marina S. Polyakova**
Siberian Institute of Plant Physiology and Biochemistry (SIPPB SB RAS).
Lermontov St., 132. Irkutsk, 664033. Russia. Phone: +7 (3952) 42-67-21.
E-mail: Filinova@sifibr.irk.ru

*Supervising author; [+]Corresponding author

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Abstract

Antibacterial and antioxidant activity of fractions obtained by various extractants (ethyl acetate, acetone, butanol, ethanol and water) from fruit bodies and a fungus-fermented substrate *Pleurotus ostreatus* (oyster mushroom) were studied. Planktonic culture of the pathogen of potato ring rot *Clavibacter michiganensis* sps. *sepedonicus* (*Cms*) was used as an object of influence. Obtained fractions (at final concentrations 1%, 0.1%; 0.01%; 0.001%) were added to the *Cms* suspension. As a control a planktonic culture of bacteria with the addition of an extract was used, whereby the extract was obtained from unfermented straw, as well as a planktonic culture of bacteria without the added extract. The effect of extracts on the bacteria growth was defined by the titer of bacteria after 2, 4, 6 and 24 hours after the start of the experiment. The effect of the obtained fractions on the virulence of the pathogen was assessed after 24 hours by the activity of bacterial endocellulase using the reducing sugars method. Studies have shown that the highest antibacterial effect was exhibited by 1% water and ethanol fractions from the fungus-fermented substrate: the decrease in the titer of bacteria was about 40%. Extracts from fungus-fermented substrate blocks also showed the highest antioxidant activity. It was concluded that water and ethanol fractions from the fruiting bodies of *P. ostreatus* and substrate blocks fermented by the fungus can be considered as the most effective for possible practical use to combat the bacterial pathogen of potato *Cms*. It is advisable to use fungus-fermented *P. ostreatus* substrate blocks to obtain biologically active substances, as they are a by-product of the production of fruiting bodies, which greatly simplifies the technology of obtaining active fractions.

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