



LACTOBACILLI ANTIMICROBIAL PROPERTIES REGARDING TO *PLEUROTUS OSTREATUS* RESIDENTIAL MICROBIOTA

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Introduction. Fermented by lactic acid bacteria products belong to one of the most spread functional food-stuffs groups.

Choosing of *Lactobacillus* as the starter cultures for the fermented products preparing is regular, because it is caused by the lactobacilli immunomodulative properties. As a part of the normal microbiota, lactobacilli colonize the organism's cavities, not causing the pathological processes, and interfering with reproduction of opportunistic microorganisms by the lactate production [5].

For today, mushrooms, as the substrate for biological canning has not been adequately investigated. *Pleurotus ostreatus* occupies particular place among the edible mushrooms – less strict and ecologically benefit for growing mushrooms. The *Pleurotus ostreatus* nutritious properties in association with lactobacilli immunomodulative properties are the potential direction in the new kinds of functional products design.

The mushrooms biological canning or bioprocessing with the using of sourdough represents the optimal method of their preservation. The bacteria of genus *Lactobacillus* biomass are usually used as a part of the sourdough. In cultivation period mushrooms undergo by the semination of competitive microorganisms – microscopic moulds and bacteria. The lactic acid extracted by lactic acid fermentation is the natural preserving agent inhibited the growth of the spoilage agent as a part of the mushrooms microbiota [2].

Aim. The aim of our investigation was the researching of lactobacilli strains antagonistic properties regarding to some *Pleurotus ostreatus* microbiota representatives.

Materials and Methods. The material of investigation was five lactobacilli strains isolated from the different ecological niches (microbiota of fermented mushrooms and health women vaginal secret): *L. plantarum* FM1, *L. plantarum* FM2, *L. plantarum* FM3, *L. acidophilus* VAG1 and *L. acidophilus* VAG2 and *Pleurotus ostreatus* microbiota representatives: *Bacillus licheniformis*, *B. subtilis*, *Pimelobacter jensenii*, *Staphylococcus cohnii* subsp.1., *S. warneri*.

Lactobacilli pure cultures isolation was carried out on the solid selective MRS medium for next identification. The microorganisms' pure cultures from residential *Pleurotus ostreatus* microbiota were isolated by 0,1 ml of homogenized in sterile physiological solution and filtered mushrooms suspension sowing out to the solid selective and differential-diagnostic mediums. The microorganisms investigated strains were identified by Bergey's manual of systematic bacteriology [4].

The lactobacilli antagonistic activity regarding to some *Pleurotus ostreatus* microbiota representatives was researched by agar blocks standard method using [1].

Results. By the investigation of isolated strains morphological, biochemical, physiological and cultural properties, it was determined that mushrooms microbiota consider such microorganisms as *Bacillus licheniformis*, *B. subtilis*, *Pimelobacter jensenii*, *Staphylococcus cohnii* subsp., *S. warneri*.

All of the studied lactobacilli strains showed antagonistic activity regarding to *Staphylococcus cohnii* subsp.1., *S. warneri* and *Pimelobacter jensenii*. The growth inhibition zone was 20mm and 23mm for *L. plantarum* FM2. Lactobacilli strains *L. acidophilus* VAG1 and *L. acidophilus* VAG2, *L. plantarum* FM1 and *L. plantarum* FM3 inhibited the *B. subtilis* growth with a zone of a 18 and 20mm growth inhibition, accordingly. *Bacillus licheniformis* strain, isolated from mushroom suspension, is tolerant in relation to lactobacilli investigated strains.

Conclusion. It is established, that lactobacilli strains inhibited the growth of indigenous, including condi-

tional-pathogenic microorganisms, which are *Pleurotus ostreatus* microbiota representatives?. Practically all investigated lactobacilli have shown a high antagonistic activity *L. plantarum* FM2 strain has shown the maximal antagonistic activity.

Lactobacilli, used as a starter cultures for a various substrates? fermentation, shouldn't suppress the growth of lactobacilli – representatives of human intestines? normal microbiota [3].

Antagonistic action of isolated lactobacilli strains on lactobacilli of fecal and vaginal origins is certain. It has been noted reliably ($\delta > 0,05$), that any of investigated lactobacilli strains, isolated from natural sources did not oppress the growth of *Lactobacillus* genus strains, isolated from a nonpregnant women vagina and adults and children gastroenteric path.

So that, *L. plantarum* FM1, *L. plantarum* FM2, *L. plantarum* FM3, *L. acidophilus* VAG1 and *L. acidophilus* VAG2 can be recommended to using as a starter cultures for *Pleurotus ostreatus* fermentation.

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