total phenol content, total flavonoid content and radical scavenging activity was determined. Significant improvement in the phenol content, flavonoid content and free radical scavenging activity contributed to the total reducing power and antioxidant potential of this soup mix. Total phenol content was raised upto 2.77 mg/g of gallic acid from 0.95 mg/g, total flavonoid content was increased upto 4.38 mg/g of quercetin soup fortified with 10% of fortification with Cordyceps sinensis powder. Concentration dependent scavenging activity was evaluated using DPPH and NO assays. IC50 (scavenging of 50% 1,1 -diphenyl-2-picrylhydrazyl and Nitric Oxide radicals) values were reduced from 208.92 μg/ml to 37.93 μg/ml and 389.04 μg/ml to 43.65 μg/ml respectively for DPPH and NO assays.

P-5-5

Antifungal Activity of Mycelia of Medicinal Mushrooms *Fomes fomentarius* and *Fomitopsis pinicola* (Agaricomycetes, Polyporales) Against Potentially Pathogenic for Humans and Animals Keratinophilic Fungi

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**Key words:** Medicinal mushroom, *Fomitopsis pinicola*, *Fomes fomentarius*, mycelium, antifungal activity, keratinophilic fungi

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**Abstract:** The treatment of widely spread fungal infections particularly in immune-compromised patients causes different side effects. Therefore, a search for natural sources of antymycotic compounds is in demand. Polypore mushrooms are considered sources of bioactive metabolites with different therapeutic action. The antifungal effect was mainly reported due to their terpenoids and phenolics. Medicinal polypores *Fomes fomentarius* and *Fomitopsis pinicola* were used in traditional medicine as coagulating, antibacterial, anti-inflammatory and immunomodulating agents.

The antifungal activity (AFA) of *F. fomentarius* (8 strains from Armenia) and *F. pinicola* (3 strains from Russia and 3 strains from France) isolated from ash, beech, hornbeam, walnut, white willow, birch and spruce wood were studied in dual culture experiments on potato-dextrose agar (PDA) against potentially pathogenic for humans/animals keratinophilic fungi *Microsporum gypseum*, *Trichophyton terrestrae* and *Chrysosporium keratinophilum* isolated from Armenian soils. Cultural liquid (CL) and mycelial biomass were obtained after cultivation of mycelia in liquid malt-extract during 21 days. Mycelial biomass was extracted by ethanol to obtain mycelial extract (ME) samples.

The AFA was evaluated in dual culture experiment using PDA with CL (1:1) of mushrooms and using paper discs (5 mm) with 4% ME samples diluted by DMSO. Petri dishes were incubated at 25°C, the mycelial average growth rate (GRave) was calculated.

In97.1% of interactions, the AFA of *F. fomentarius* and *F. pinicola* towards *M. gypseum*, *T. terrestrae* and *C. keratinophilum* was revealed by overgrowth reactions on test fungi, whereas complete overgrowth was 74.3%, partial overgrowth after contact and complete overgrowth were amounted to 11.4% each. Only in 2.9% of interactions the deadlock reaction at the contact was observed in *F. pinicola* (Ha-4) towards *M. gypseum*. 
Inhibition of GR$_{wt}$ of test fungi was up to 5.5% and 67.8% with *F. fomentarius* and *F. pinicola*, respectively. GR$_{wt}$ of *F. pinicola* rose up to 41.0%, while GR$_{wt}$ of *C. keratinophilum* declined up to 18%. The CL samples of *F. fomentarius* suppressed the GR$_{wt}$ of *T. terrestris* and *M. gypseum* by up to 42.9% and 58.3%, respectively, while the CL samples of *F. pinicola* supressed GR$_{wt}$ of *M. gypseum* by 86.5% and showed fungistatic effect against *M. gypseum* (H-2) and *C. keratinophilum*, as well as both fungicidal/fungistatic effects against *T. terrestris*. The ME samples suppressed the GR$_{wt}$ of *T. terrestris*, *M. gypseum* and *C. keratinophilum* by 25.0%, 29.2% and 13.0%, respectively.

Thus, *F. fomentarius* and *F. pinicola* are considered potential sources of extra-and intracellular antifungal biomolecules.

P-5-6

Proteolytic/Thrombolytic Effect of Mycelia of Medicinal Mushroom *Fomitopsis pinicola* (Agaricomycetes, Polyporales)

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**Key words:** Medicinal mushroom; *Fomitopsis pinicola*; mycelium; thrombolytic activity

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**Abstract:** Cardiovascular diseases are the leading cause of death worldwide as a result of abnormal fibrin accumulation-a thrombus, adhering to the vessel walls. Thrombosis may cause acute myocardial infarction, ischemic heart and stroke. In response to the high mortality rates associated with thrombosis, antithrombotic studies and clinical antithrombotic therapies are progressing rapidly. Since life-threatening thrombolytic drugs (recombinant plasminogen activators, Streptokinase) possess several side effects (thrombocytopenia, leukopenia, haemorrhage, etc.) a search for new natural sources of proteases and safer thrombolytic/fibrinolytic agent is currently in demand. Mushrooms are synthetize different proteases. It was found that fibrinolitic/thrombolytic effect of mushrooms is mainly caused by serine-and metalloproteinases. In order to screen proteolytic/thrombolytic activity (TLA) of genetically identified 13 collections of brown/white rot bracket medicinal polypore *Fomitopsis pinicola* (Russia-8, France-4, Italy-1), mycelia were cultivated stationary on malt-extract liquid medium (pH 6.0, 5 inocula/50 ml) at 25°C. As a source of proteases cultural liquid (CL) samples obtained after 14 days of cultivation with pH values 2.20-3.80 were added on thrombus, obtained from healthy human fresh blood (30 mg/ml). About 20 mg of thrombus was placed into each sterile Petri dish/tube and 50 and 100 mg/ml CL samples were added. After 24 hrs incubation at 25°C in dark, the supernatants were removed and the clots were weighed. Malt-extract and 0.9% NaCl solution were used as controls. The results were recorded in the first 5, 10, 30 min and every hour during 4 hours. The TLA was evaluated by the intensity and rate of thrombolysis, as well as weight and consistency of blood clots. In both experiments, the thrombolysis was started 10 min after adding CL and expressed by changing of CL color from yellowish to dark red, black and decreasing weight of clots. Based on the ability to decrease the clots’ weight, *F. pinicola* collections were devided into 3 groups: >50 %, 30-50 % and <30 %. At 100 mg/ml CL, the first group includes 1 Russian, second group-3 French, 2 Russian and 1 Italian and the