

JOINT EVENT

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**Between two paradigms of mushroom biotechnology: solid-state cultivation and submerged growing**Marian Petre<sup>1</sup> and Violeta Petre<sup>2</sup><sup>1</sup>University of Pitești, Romania<sup>2</sup>Saint Sava National College, Romania

Any microbial biotechnology involves the use of biocatalysts, as whole microorganisms or their enzymes to synthesize useful metabolites or convert the raw materials into new products. Basically, there are two paradigms of mushroom biotechnology, as solid-state cultivation of mushroom species and the new procedure regarding their submerged growing in safety conditions. The specific status of all native or indigenous mushrooms is to grow and develop in natural habitats by colonizing only solid substrates. None of the known mushroom species has the ability of growing and developing in natural aquatic habitats, and much more than that, none of them is adapted to form fruiting bodies inside a liquid medium. This is a restrictive condition for all native mushrooms by which they are compelled to live inside terrestrial ecosystems but through the application of submerged cultivation, many of these species can be grown in safety conditions. In this respect, it should be taken into consideration that the physical and chemical factors interact and affect the efficacy of the bioprocess regarding the mycelia growth inside the liquid medium. The submerged cultivation of mushrooms (SCM) has an exclusive and specific character concerning the mycelial growth in very different conditions by comparison with solid-state cultivation. SCM refers to a biotechnological process of mushrooms growing inside an artificial environment represented by the volume of a liquid medium where they are provided with all the needed physical and chemical factors for optimal development of mycelium without any risk of chemical or biological contamination, as shown in this study.

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