

Influence of Low-Intensity Laser Radiation on the Growth and Development of *Hericium erinaceus* (Bull.: Fr.) Pers. and *Pleurotus ostreatus* (Jacq.: Fr.) Kumm.

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Sources of radiation differ in their influence on the development of various mushroom species. It depends on the mushroom's development stage when affected by radiation, spectral composition, and intensity of radiation. Such processes as spore germination, growth of vegetative mycelium, biomass building, terms of fruiting body growth and sporulation, yield, and other characteristics of biological activity could be inhibited or stimulated. Laser radiation of low intensity in the red spectrum part stimulates some life processes in higher plants, animals, bacteria, and cell cultures. Similar investigations were not yet conducted with Basidiomycetes.

The study of radiation influence on the higher Basidiomycetes *Hericium erinaceus* (Bull.: Fr.) Pers. and *Pleurotus ostreatus* (Jacq.: Fr.) Kumm. is of practical and theoretical interest. Selection of high-productive commercial strains is one of the practical aims of research of these well-known edible and medicinal mushrooms. The important outcome of this work is in obtaining of monosporous cultures from basidiospores. Insufficient germination of spores and slow growth of

monosporous isolates make selection difficult with *H. erinaceum*. Low-intensity laser radiation in the red band (laser LAN-215, POLARON Co., Lviv, Ukraine, wavelength 632.8 nm), in doses of 45 and 230 mJ/cm², of the spores of three strains of this mushroom caused an increase in their germination of 10–10⁵ times. The effectiveness of spore germination was higher in spores with lower germination percentage. This corresponds with the data obtained by other researchers with microorganisms. It is accepted that photostimulation is developed when proliferative cell activity is inhibited. Besides, we have noted the shortening in time of radiated spore germination and formation of aerial mycelium. Monosporous isolates from such spores grew more than 2 times faster.

Radiation of dikaryotic mycelia of *H. erinaceus* and *P. ostreatus* in the same doses increased by 14–20% mycelium growth rate in the substrate, shortened the terms of cultivation, and increased the yield under semicommercial conditions for *H. erinaceus* by 30% and for *P. ostreatus* by 26%. This is of importance for industrial cultivation of these mushrooms.