

## **Shiitake, *Lentinus edodes* (Berk.) Sing. Fruiting Body Production for Use as Pharmaceutical Raw Material**

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Several shiitake strains were tested for their fruiting body productivity on different substrate formulations. An easy fruiting strain combined with an enriched substrate formulation resulted in the highest fruiting body yield. These fruiting bodies were used for the production of pharmaceutical raw material.

Antitumor active polysaccharides such as  $\beta$ -glucans isolated from shiitake fruiting bodies are used for cancer therapy. The active structure is based on a 1-3- $\beta$ -D-glucopyranan chain with 1-6- $\beta$ -glucosyl branches. Active structures are found in the fruiting bodies, mycelia of shiitake, and also in the cultivation media. Investigations of the shiitake mushroom ingredients and their application proves to be effective against brain cancer. The active structures are biological re-

sponse modifiers (BRMs) or immunopotentiators because of their action mechanism.

With a specific combination of the growing media, physical parameters, temperature treatments, moisture content, and the optimal harvest time the amount of effective substances could be optimized. Changes in the substrate results in differences in the cap, stalk, and mycelia composition. Pests and diseases influence the amount of active substances in the fruiting bodies.

Positive feedback of tumor patients who used shiitake ingredients in Germany and other Western European countries as dietary foodstuff underlined the effectiveness of pharmaceutical substances in shiitake fruiting bodies as a medicinal mushroom.