

Effects of Medicinal Mushrooms and Their Products on Cytokine Production

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A randomized clinical trial to evaluate the medicinal effects of the shiitake mushroom and its products was carried out. The clinical trial was conducted over a period of 3 months. The volunteers were undergraduate students from the Department of Microbiology who consumed either fresh shiitake, essence of shiitake, or linzir (a blend of lingzhi and shiitake mushroom) capsules daily for 28 days. Placebo groups were also established for each product. Evaluation of the effects of the mushroom products was carried out by assaying the cytokine levels in the blood of volunteers as well as by symptom scores. Blood was drawn from the volunteers on four different occasions—day 1, 7, 29, and 58. At the same time, respiratory symptoms manifested during the trial were recorded on a symptom score book.

The results from this limited trial showed that there was no significant induction of interferon- α for all groups. The consumption of linzir capsules caused a significant induction of interferon- γ ($p = 0.002$) but the level decreased significantly

after 29 days into the trial. Only the group that consumed fresh mushrooms showed a significant increase in the levels of tumor necrosis factor- α ($p = 0.036$) during the first week of consumption. After that the level tapered off. The data from this study indicated that induction of cytokine could be dose dependent and short lived. There could also be a threshold level of stimulation, and a subsequent dose would not change the induced level. In addition, the groups who took the products scored fewer respiratory symptoms throughout the 3-month period.

As the number of volunteers in each group was very small (average 15 persons) one has to be cautious in forming any firm conclusion from the data generated from this trial. However, there were encouraging indications that these mushroom products could induce cytokine production in healthy volunteers. With these preliminary findings a more extensive trial is now being conducted. The results will be made known during the presentation.