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IMMUNOMODULATING EFFECTS OF HOT-WATER EXTRACT FROM *PLEUROTUS OSTREATUS* MYCELIUM ON CYCLOPHOSPHAMIDE TREATED MICE

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ABSTRACT

With the view of developing new immunotherapeutic agents, there has been a recent upsurge of interest in edible mushrooms. Hot-water extract (F-I: 43.6% w/w carbohydrate and w/w protein) prepared from the mycelium of *Pleurotus ostreatus* was administered intraperitoneally (i.p.) at 100 mg/kg for 7 days to Balb/c mice and cyclophosphamide (CY) at 10 mg/kg was injected on the fifth day. The influence of F-I administration on the immunosuppression caused by CY was evaluated on the eighth day. CY treated mice exhibited less pronounced immunosuppression and more rapid haematopoietic recovery when administered with F-I. The i.p. injection of F-I increased bone marrow cellularity (4.1×10^6 *vs.* 1.5×10^6 per femur in saline control group, $P < 0.01$), the white blood cell counts (7.6×10^9 *vs.* 4.8×10^9 cells/l, $P < 0.05$) and led to a two-fold increase in the number of endogenous macroscopic colonies of hemopoietic tissue on the parietal surface of spleen ($P < 0.05$). F-I enhanced the murine reticuloendothelial system as judged by the shorter rate of carbon clearance (4.23 *vs.* 6.18 min, $P < 0.05$). F-I increased the number of peritoneal exudate cells ($P < 0.01$) and stimulated *in vivo* murine macrophage phagocytic ratio (15.65% *vs.* 4.70%, $P < 0.01$) and phagocytic index (1.06 *vs.* 0.12, $P < 0.05$). No toxicity signs such as hepatosplenomegaly were observed in F-I treated animals. These effects suggest that F-I could enhance host-defense mechanisms *in vivo*.

Key words: ***Pleurotus ostreatus*, edible mushrooms, mycelium, cyclophosphamide, macrophage, immunomodulator.**