# Studies on the Optimization of Culture Conditions and Antitumor Effects of *Pleurotus ferulae*

차월석*
조선대학교
(wscha@mail.chosun.ac.kr*)

The objectives of this work are to determine the optimal culture conditions in liquid-state fermentation for production of *P. ferulae*, and to investigate the effects of *P. ferulae* extracts on viability of human cancer cell lines for screening the antitumor substances contained in *P. ferulae*. The optimal medium composition was glucose 5%, polypeptone 1%, yest extract 0.8%, $K_2HPO_4$ 0.12%, and $MgSO_4 \cdot 7H_2O$ 0.12% (w/v). By using the optimized medium, mycelial and exo-polysaccharide concentrations after 10 days with a 5-L jar fermenter were 13.2 g/L and 4.95 g/L, respectively. We proposed logistic model to describe the mycelial growth and Leudecking-Piret model for exo-polysaccharide formation in *P. ferulae*. As the results, developed model showed good agreement mycelial growth and exo-polysaccharide production. Ethanol extracts of *P. ferulae* fruiting body(PFF) showed strong cytotoxuicity against A549 cells at concentrations over 10 μg/mL. Also, PFF ethanol extracts induced synergistic effect on TRAIL-induced apoptosis in A549 cells, which were strong resistant to TRAIL. These results indicated that ethanol extracts of PFF were the most prominent antitumor agents for lung cancer cells (A549).