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Abstract
Oudemansiella mucida belongs to the wood decaded fungi of broadleaf tree, and is an edible mushroom. It contains highly active enzyme, pyranose oxidase (POX), which can dissolve ligin. In addition, a substance named mucidin is found in O. mucida
which has been shown to have antifungal ability to suppress, and to stop mitochondria respiration.
This study was divided into two parts: First was mycel at fermentation mainly using Taguchi method, the second was fruiting body on antioxidant, reducing power, ferrous ion chelating activity, and antitumor growth. In this study, the optimal carbon and nitrogen sources are 2% soluble starch and 1% yeast extract. In Taguchi Method L18 (21×37), the reducing powder and antioxidant studies were shown that the best growth condition was A2(100 rpm), B3(10% soluble starch), C3(5% Yeast extract), D2(culture temperature is 26℃), E1(pH4.5), F2 (0.1% MgSO4・7H2O), G3(0.15% KH2PO4) and H1 (10ng/mL CuSO4・
5 H2O).
In fruiting body extracts including 50% hot ethanol at 90℃, 50% cold ethanol at 90℃, 99.5% heated methanol at 90℃, 99.5% cold methanol at 90℃, 95℃ hot water and 26℃ cold water extractions were studied to example their antioxidant activities. In DPPH・radicals, it was found that hot methanol extract (8 mg/mL) had the better scavenging activity, equivalent to ascorbic acid 7.87μg/mL. In reducing power antioxidant test, 50% cold ethanol extract had the best result, equivalent to ascorbic acid 208.682μg/mL. While in ferrous ion chelating ability, the 99.5% cold methanol extract showed best result at 8
mg/mL, equivalent to ascorbic acid 59.61μg/mL respetively.
In total phenol contents analysis, the best result was from the 50% ethanol heat extracts which had significant higher amount in those of five different extracts (75.17μg/mg
pyrocatechol equivalent).
In tumor cell toxicity test, MTT assay was performed in six different fruiting body extracts. In human breast cancer cell line (MDA-MB-231) showed the hot water extract had the best tumor cell suppression activity with survival rate 63.72%. In human fibrosarcoma cell line (HT-1080) showed the hot water extract had the beast tumor cell suppression activity with survival rate 80.83%. In lung cancer cell line（A 549）showed the cold water extract had the best tumor cell suppression activity with survival rate 61.28%.

There was no significantlly tumor suppression activities in CHO-K1 in all six different. Mean while, all above six different extracts showed the ability to reduce H2O2 induced
dmage to the cells.
This study indicates that the mycelia or fruiting bodies of O. mucida may be potentially used for health food in antioxidant.
Advisory Committee Chi-Jhen Chen - advisor

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