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Abstract Abstract
Ustilago maydis, belonging to the class Basidiomycetes, is a plant parasite and an edible and medicinal fungus in many countries in Latin American. It is a kind of plant pathology which causes of the smut disease in maize. The approximately 1,200 species
of smut and the number of hosts for smuts approaches nearly 4,000 species in the world.
In this study, the aim of this selected optimum growth condition of U. maydis on submerged culture. The biological activities treated with broth of submerged culture were analyzed. The optimum culture conditions are at 30℃ in pH6, and the carbon and nitrogen sources are sucrose, and yeast extract.
According to the results of antibiotic activity, fermented solution from U. maydis(sucrose is 10% and 5%) could inhibit the growth of Escherichia coli、Pseudomonas glumae、Listeria monocttogenes for at least 24 hours.
The inhibition of antitumor cells test showed that semberged cultrue use 10% of sucrose is higher than 40% against cervical cancer cell (HeLa), against prostate cancer cell (DU145), breast cancer cell (MCF-7), liver cancer cell (Hep G2), and fibrosarcoma cell (HT-1080). The 5% of sucrose is higher than 30% against cervical cancer cell(HeLa) prostate cancer cell (DU145), breast cancer cell (MCF-7), liver cancer cell (Hep G2) and fibrosarcoma cell (HT-1080). The 2.5% of sucrose is alone 30% against ncervical cancer cell (HeLa).The growth inhibitory effect of macrophage activating factor-activated macrophage from RAW264.7 wihich had been pertreated with fermented solution of U. maydis in the presence of 25~100 U+B5l is 25% against fibrosarcoma cell (HT-1080).
The antioxidant activity showed that in fermented solution from U. maydis has scavenging effects is 90% on 1,1,-diphenyl-2-picryl hydrazyl radicals (DPPH·).Culture shaker is 150 rpm with sucrose 10% and 5% that the reducing power has high activity(70%); through culture shaker is 150 rpm with sucrose 10% has highest activity (90%).
In vivo, production indole-3-acetic acid (IAA) of U. maydis submerged culture with tryptophan. The result showed that fermented solution from U. maydis not to discover is indole-3-acetic acid but it is probably lindole derivatives.
Key word : U. maydis 、antibiotic、antitumor、antioxidant 、indole-3-acetic acid
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