Phylogenetic analysis, contents of bioactive ingredients and antioxidant activity of cordyceps milit

徐胤桓、徐泰浩

E-mail: 345418@mail.dyu.edu.tw

ABSTRACT

Cordyceps militaris belongs to the same genus as C. sinensis which is a well known traditional Chinese medicine with pharmacological activities. Both C. sinensis and C. militaris are rare and expensive. However, the mycelial of C. militaris strains have been isolated and successfully cultivated to manufacture in large quantities by fermentation technology. To investigate the phylogenetic and chemical characterizations of 6 mycelia strains and one fruiting body of C. militaris from different regions, sequence analysis of nuclear and mitochondria ribosomal genes including internal transcribed spacers (ITS) and bioactive ingredients comparison were applied. Although phylogenetic trees of nuclear and mitochondria ribosomal genes showed slightly differences by geographical origins, all sequences formed single cluster, which suggested that intraspecies variations were small. In contrast, statistical differences were found by analysis of proximate composition, intracellular polysaccharide (IPS), exopolysaccharide (EPS) and cordycepin of mycelium in submerged cultured of 6 C. militaris strains. These results suggest that cultured mycelia of different C. militaris strains would be different in content of bioactive ingredients, Furthermore, investigation of antibacterial activities from C. militaris DYU1 showed that fermentation fluid of DYU1 has a good suppression for pathogen Staphylococcus. aureus. Nevertheless, analysis of polysaccharide structure by FTIR from C. militaris DYU1 releaved that the crude polysaccharide contain β-1,3 glucan functional group

Keywords : Cordyceps militaris、phylogenesis、bioactive ingredients、antioxidant activity、antibacterial test、FTIR

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