Effect of Growth and Culture Conditions of *Paecilomyces japonica and Cordyceps militaris* on the Formation of Bioactive Substance

Jeng, Yong-Young
Department of Biology
Graduate School
JEONJU University

Abstract

To investigated the effect of liquid culture conditions and nutrient sources on the formation with bioactive substance of *Paecilomyces japonica* and *Cordyceps militaris* cultivated in the country, the result are as follow; The growth temperature of two mycelia is 25℃ and the proper temperature for cordycepin growth is around 20℃.

The formation amount of bioactive substance by nutrient sources reached its peak with using 2% glucose and 1% galactose in case of carbon sources and 0.4% inorganic compound in case of nitrogen sources.

Also, the ratio of C/N was optimal with 3% glucose to 1% peptone. For a natural medium, most grains were sufficient but the soybean oil was superb.

The formation amount of protein-binding polysaccharide that are used for anticancer substance was in proportion to the growth rate of mycelium, had lots of aeration and showed a trend of increasing when the acidity lower. and the content of structural protein showed a trend of increasing when the acidity lower.

However, the content of the structural hexosamin did not get a great the effect of culture conditions and nutrient sources. The constitution of monosaccharide that organizes a protein-binding polysaccharide greatly changed in proportion to carbon sources.

When *Paecilomyces japonica* cultured in a silkworm larvae for 30 days, the content of cordycepin was 204.5 mg/100mL as a dry weight in the fruiting body, 41.8 mg/100mL in mycelium and larva, and the content for each bottle was average 29.5 mg/100mL.

In case of *Cordyceps militaris* for 45days, the fruiting body was 563.5 mg/100mL, the larva and the mycelium was 86.1 mg/100mL, and the content for each bottle was average 65.0 mg/100mL.