

Fed-batch Culture of *Cordyceps sinensis* for the Production of Its Mycelium and Cordycepin

Daeseok Han, Young-Eon Kim, Chang-Ho Lee, and Se-Wook Oh
Korea Food Research Institute
TEL: +82-31-780-7246, FAX: +82-31-780-9226

Cordyceps sinensis, a Tochuksa species, has been known to be beneficial to human health. Its fruiting body can be harvested only at the high mountain around Tibet, so it is rare and high in price. It has been often found that the composition of fruiting bodies of mushroom is similar to that of mycelia. This study was done to maximize the production of mycelium of *Cordyceps sinensis* and cordycepin, an effective metabolite of *C. sinensis*. Based on the results obtained from batch culture, optimal conditions of fed-batch culture were studied. Control of medium composition, pH, and dissolved oxygen and pulsed-feed strategy in a fed-batch culture yielded dry mycelium weight of 44.3 g/L and cordycepin of 56.1 mg/L. A cordycepin was found in a culture broth, indicating that it is an extracellular metabolite. Considering that the cordycepin content in fruiting body and host of *C. sinensis* was 30.1 mg/100 g and 18.9 mg/100 g, respectively, its production using a bioreactor might be competitive in price with a natural mushroom.