

Comparative Analysis of Cordycepin, Minerals, and Vitamins on Cultivation Media of *Cordyceps militaris* (L.:Fr.) Link

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Cordyceps militaris, belonging to Clavicipitaceae, Ascomycotina, has long been considered to have natural medicinal properties, compounds that are homeostatic, mycolytic, and antiasthmatic, and it is used as an expectorant. It has also been found as an insect parasite under humid ground in the mountains of Korea, China, and Japan.

Cordycepin, a nucleoside analogue 3'-deoxyadenosine with a broad spectrum of biological activity, was first extracted from *C. militaris*. The quantitative analysis of cordycepin is important in studies of their functions in biological systems.

The purpose of the present study was to develop a simple, fast, and sensitive LC/MS method for simultaneous separation and determination of an active component in the oriental medicinal mushroom mentioned above. Based on this work, the contents of cordycepin in *C. militaris* fruiting, cultivated on various media, were determined and compared. And

also, the nutritional components such as minerals and vitamins were determined in order to provide useful information to the consumers. The optimum separation for cordycepin was achieved using a solvent gradient consisting of a mixture of 0.1% formic acid in methanol (solvent B) in a background of 0.1% formic acid in water (solvent A) as a mobile phase and a 3.0×150 mm Waters Xterra column. Selective ion monitoring (SIR) mode ([M+H]⁺ at m/z 252) was used for quantitative analysis of cordycepin. The cultivated *C. militaris* on various media contained 1~14 mg/g of cordycepin, 0.65~1.08 mg% of thiamine, 0.86~7.17 mg% of riboflavin, and 3.01~5.26 mg% of niacin. The content of mineral components varied on categories, especially on those containing 500~3500 mg% of potassium as a major mineral. Cordycepin, niacin, and potassium were much higher in the fruiting cultivated with soy powder media (gold 10) than other media.