

Le Tan Hung 2010: Entomopathogenic Fungi in the Southern Area of Cat Tien National Park, Vietnam and Cordycepin Production in Selected Species from Japan, Thailand and Vietnam. Master of Science (Biotechnology), Major Field: Biotechnology, Department of Biotechnology. Thesis Advisor: Assistant Professor Suttipun Keawsompong, Ph.D. 200 pages.

Cat Tien National Park of Vietnam has members of entomopathogenic fungi, which are important for use in biological control of insect pests and production of bioactive compounds. A survey and collection was conducted in September 2007, 259 fungal specimens were collected and 41 species that belong to 17 genera were recorded. Regarding to fungal distribution, 84.9% specimens were on leaves of plants, 14.7% was on forest floor and only 0.4% was on tree twig. In addition, the availability of anamorphic (asexual) stage was higher than that of teleomorphic (sexual) stage, and 8 arthropod Orders were recorded to be hosts of fungal entomopathogens. In laboratory, 149 cultures were successfully isolated and long-term preserved, which will be potential source for further applications. Cordycepin, a nucleoside analogue (3'-deoxyadenosine), is an important bioactive compound in *Cordyceps* products and has broad spectrum of biological activities. The current study on 35 cultures of 32 species origins of Japan, Thailand and Vietnam found that only Japanese strain, *Cordyceps militaris* BCC 2816, could secrete cordycepin into PDB and PG culture media. Further investigation on 15 *C. militaris* strains indicated that the highest cordycepin yields, 587.68 ± 16.82 mg/l and 544.82 ± 99.80 mg/l, were from two strains *C. militaris* BCC 2819 and *C. militaris* BCC 2816, respectively, at 25°C. Cordycepin quantities of other *C. militaris* strains were significantly lower at the same condition. On the effect of temperature, fermentation temperature from 15°C to 20°C promoted growth however the suitable temperature for cordycepin production was 25°C and higher temperature at 30°C inhibited cordycepin production in consequence of growth inhibition. In conclusion, *C. militaris* BCC 2819 and *C. militaris* BCC 2816 are highly recommended in cordycepin production for commercial purpose.

Student's signature

Thesis Advisor's signature