

# Production of Cordyceps herb Using Zophobas morio

**Taiwan Pat. No. : M 443016**

## Introduction

The precious traditional medicine **Dōng chóng xià cǎo** ( **Ophiocordyceps sinensis** ;冬虫夏草) is a fungus Hirsutella sinensis that parasitizes larvae of Hepialus armoricanus and produces fruiting body, The caterpillars live underground in alpine grass on the Tibetan Plateau and the Himalayas at an altitude above 10,000 ft. it is the most premier tonic herbs and is used as treatment for cancer by herbalists. **Recently its price approach \$ 135,000 /kg**, more expensive than gold, the abnormal high price initiated inter-village conflicts and Nepalese Civil War, Because over digging for wild-harvested C. sinensis bring the fatal ecology crisis to Qinghai-Tibet Plain. Liquid fermentation of mycelium is an alternative, but finally only artificial cultivation by growth of Hirsutella sinensis or Paecilomyces hepiali on Zophobas morio can solve all of the problems. This Patent ( Zophobas morio as host, infected by Hirsutella sinensis or Paecilomyces hepiali ) is now cooperating with well-known Grape-King Biotech. Inc. in Taiwan for commercial production. HPLC analytical datas show that the effective medicinal components in my product are higher than traditional herb, and the production cost is only 0.054% compared to wild-harvested herb.

## Uses :

- (1) protect the liver, lung and kidney from damage.
- (2) anti-depressant effect ;anti-cancer and anti-tumor.
- (3) be beneficial to hypertension and diabetes.
- (4) energizing effect, increase endurance through heightened ATP production

Table 1: Comparision and evaluation of different products

Commercial products		Ophiocordyceps sinensis	<b>Generate-Power</b>
Analysis data		(wild-harvested)	( my products )
Bioeffective components ( mg/g )	Adenosine	0.571	0.595
	Cordycepin	N.D	0.028
	Ergosterol	4.820	2.544
Yields (tons/year)		≤ 100	All you need
Production cycle-period		5 years	4 months
Mass Production		Impossible	Easy
Cost		\$ 120,000/ kg	\$ 70/ kg



Fig. 1 *Ophiocordyceps sinensis* (Dōng chóng xià cǎo , chinese:冬虫夏草)

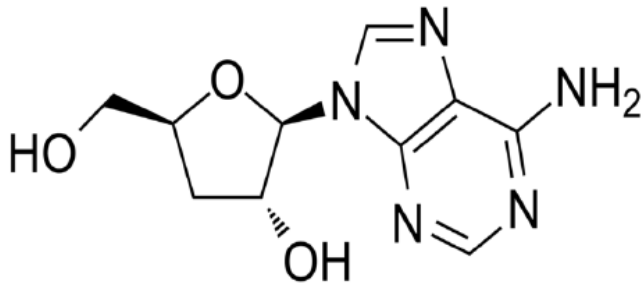


Fig. 2 Cordycepin ( 3-deoxyadenosine ) isolated from *Ophiocordyceps sinensis*

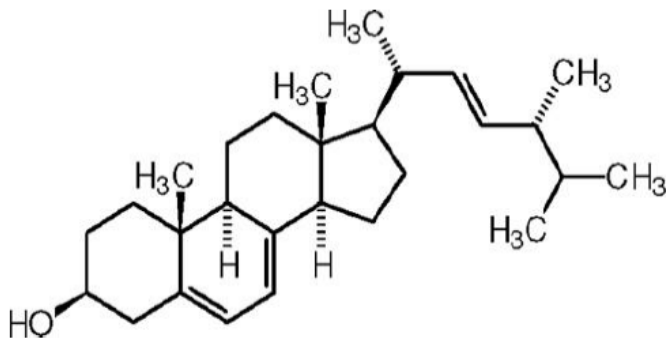


Fig.3 Ergosterol (ergosta-5,7,22-trien-3β-ol) found in *Ophiocordyceps sinensis*



Fig. 4 Left: *Hepialus armoricanus*  
Right : *Zophobas morio*



Fig. 5 The formation of fruiting body



Fig.6 Commercial Product (Generate-Power)