**Cordyceps Militaris vs Cordyceps Sinensis**

In the traditional Chinese medicine herbs list, there are two main entomogenous fungi, *Cordyceps* *militaris* and *Ophiocordyceps sinensis* (*Cordyceps sinensis*) are used as sadaptogens. Nowadays, it’s a popular superfood mushroom consumed all over the world. The difference between these two fungi is always paradoxical. In biology, there are some inherent differences between them.

***Cordyceps militaris* cultivation have scaled up and industrialized**

A research group in Yunnan University collected and analyzed 710 samples of *Cordyceps sinenesis* with larva from 88 geographic locations. The results indicate that the host of these samples can be separated into 102 species of *Thitarodes* (ghost moths) and *Ahamus* genus. Artificial cultivation of *Cordyceps sinensis* is achievable but costly and time consuming. It’s the main reason for the wild *Ophiocordyceps sinensis* price staying high.

In the contrast, *Cordyceps militaris* shows the widest host range across *Lepidotera* and *Clopitera*. Furthermore, *Cordyceps militaris* can be grown on cereals and beans in suitable moisture. *Cordyceps militaris* cultivation is much easier than *Ohiocordyceps sinensis*. The steady production and high-quality *Cordyceps militaris* could be cultivated in a culture room with artificial intelligent controlling environment.

***Ophiocordyceps senensis* grows as a mixture with different fungi**

The first strain isolated from wild *Ophiocordyceps sinensis* is *Paecilomyces hepiali*. It’s the earliest artificial cordyceps product and is named Cs-4. Another strain isolated from *Ophiocordyceps sinensis* is *Hirsutella sinensis*. The genome sequence analysis indicated that *Hirsutella sinensis* is the monokaryotic (anamorph) mycelium of *Ophiocordyceps senensis* (anamorph). Cordyceps militaris lives solely and can be easily isolated for artificial subculture.

**There is no cordycepin synthesis gene found in genome sequence data of Ohiocordyceps sinensis.**

Cordycepin is a unique compound synthesized in *Cordyceps militaris*. There are a lot of healthy effects of adaptogenic *Cordyceps militaris* are due to cordycepin. The Cordyceps militaris benefits are known as immune system, lung and adrenal adaptogens. In some areas, *Cordyceps militaris* is called superfood mushroom. In *Ophiocordyceps sinensis*, no cordycepin synthesis gene has been found in its genome sequence. The trace of the cordycepin in nutraceuticals comes from *Paecilomyces hepiali*.

**The mating type of *Ophiocordyceps* *sinensis* is homothallic while cordyceps militaris is heterothallic.**

As mentioned above, *Hirsutella sinensis* is the monokaryotic mycelium of *Ophiocordyceps* *sinensis* and is also known as anamorph. There are haploid and diploid phase in the live cycle of cordyceps mushrooms. In haploid phase, mycelium is monokaryotic and develops conidia to spread out. The haploid hyphae fuse to dikaryotic cells to form fruiting body in diploid phase. Monokaryotic mycelium grows with conidia developing in haploid phase and fuses to form fruiting body forming via plasmogamy called diploid phase.

There is only one kind of hyphae in *Ophiocordyceps* *sinensis* containing both MAT1-1-1 and MAT1-2-1 mating genes therefore it’s homothallic. Heterothallic *Cordyceps militaris* has two kind of hyphae containing MAT-1-1-1 and MAT1-2-1 genes separately.

We quantify cordycepin synthesis genes on the mycelium stage of Cordyceps militaris and pick the best one for crossing to breed high cordycepin strains.

**Conclusion**

The price of wild *Ophiocordyceps sinensis* gets higher and higher. More and more evidences showed that cordycepin is the major compound of the efficacies which means *Cordyceps militaris* may possess broader spectrum of efficacies than *Ophiocordyceps sinensis*.

SOURCE: <https://www.dalong.com.tw/en/blog/knowledge/cordyceps-militaris-vs-cordyceps-sinensis-2/>