

# **YARTSHAGUMBA**

## ***Cordyceps sinensis***

*Cordyceps* is a Chinese fungus used in Traditional Chinese Medicine (TCM) for “lung protection” and “reproductive invigoration” as well as to balance the “Qi” – the fundamental “energy of life.” *Cordyceps* is also known as the Chinese caterpillar fungus because it is a parasitic organism that grows on a rare Tibetan caterpillar until the caterpillar dies and the mushroom sprouts from the caterpillar’s head.

Owing to the herb's high efficacy and potency in curing various diseases, it is well known as an important nourishing tonic. However, as the source and the gathering of the herb is rare and difficult, so its supply often falls short of demand.

### **1. BIOLOGY**

#### **A. Taxonomy**

*Cordyceps sinensis* is the only species of this genus found in Nepal.

Family - Hypocreaceae

Local Name - Yarsagumba, Jivanbuti, Buti

Chinese Name - Dong Chong Xia Cao

English Name - Caterpillar Mushroom, Cordyceps



*Cordyceps Sinensis* is from the ergot family. Yarsagumba is a parasitic, annual, non-chlorophyllous fungus. The fruiting structure of this species comes from the anterior head of larva of caterpillar.

*Yartshagumba* has two components the lower part is dead caterpillar and the upper part is a fungus. The fungus has a small spike with dark brown fructification and yellowish white stalk. The size of the fungus is about 4 to 12 cm in length and 0.14 to 0.4 cm in girth. The meaning of Yarsagumba is ‘summer-grass winter-worm’ in Tibetan language. Yarsagumba with both the caterpillar and fungal part in an intact single piece is an item of commerce.

#### **B. Habitat and Range**

Yartshagumba is extremely rare. It is distributed in the alpine region of the Himalayas at the elevation of more than 4000m. It is mainly found above the snowline in Dolpa, Jumla, Humla, Kalikot, Baglung, Mustang, Manang, and Rasuwa districts of western and central Nepal. Major confinement of this species in Jumla district is within Patarasi, Chhumchaur, Dillichaur and Patmara VDCs of eastern sector Chaudavisa river valley.

### C. Ecology

The fungus grows on the caterpillar during monsoon (rainy season). As the spores of the fungus Terminate and grow on a living, caterpillar. The caterpillar eventually dies. It takes five to seven years for the fungus to complete its life cycle and produce the natural product.

Yartshagumba only grows under very specific and hard-to-duplicate conditions. The species grows only in the Himalayas. There the temperature is low year round. The high altitude limits the Oxygen available. These harsh conditions, which make life difficult even for most fungi, is perfect for growing *Cordyceps*.

The associated plant species of this species are Kutki (*Picrorhiza scrophulariiflora*), Jatamansi (*Nardostachys grandiflora*), Bukiphool (*Anaphalis sp.*) and other high altitude grasses.

### D. Regeneration

Natural regeneration takes place from the spores of the fungus. At the beginning of the monsoon period, the spores attack the caterpillar just after it has emerged from its cocoon. If the fungus is collected in early monsoon then the caterpillar is still seen alive, later monsoon, at the time of collection, the caterpillar will not be alive. The fungal part of this species can be seen growing out of the ground immediately after the snow melts the caterpillar part remains buried under the soil. This species is not cultivated in Nepal. Although, Yartshagumba is being cultivated in America by growing the strain on soybeans for medicinal uses.

## 2. **RESOURCE MANAGEMENT**

### A. Management System

Yartshagumba is not cultivated in the Karnali. It is found growing naturally on government land as well as inside National Parks. Everyone in the area has free access to collect Yartshagumba, although it is illegal. This species is not included in the operational management plans of the CFUGs.

### B. Harvesting

In the Karnali, Yartshagumba is harvested from June to August; the best time is late monsoon. To collect one has to look at grass level; the fungus has a small spike with

dark brown fructification and yellowish white stalk. Collection is done by manual picking without using any tools regardless of age of Yartshagumba.

### C. Sustainability Issues

It is found that the present collection practice of Yartshagumba does not have any harmful impact on the availability and abundance of the species in its natural habitat. It is said that once the Yartshagumba is picked out or harvested, the following year a greater number of Yartshagumba are found growing around the pit of last year's harvest.

## 3. UTILIZATION

### A. Subsistence Use

Yartshagumba is collected by the local people and is either locally used or traded as a tonic for energy, vigour and youthfulness, or body tuner. Even livestock eats it. This product is said to be consumed in China for the preparation of expensive Chinese medicine for improving sexual vigour. For generations, *Cordyceps sinensis* has been considered the premier agent in the Chinese culture for restoring energy, supporting healthy lung function, promoting stamina and promoting longevity and improving the quality of life.

### B. Commercial Use

Once reserved only for emperors, this versatile mushroom is now the tonic of China's elite athletes. *Cordyceps* is used for increasing both energy level and endurance, enhancing athletic performance through aerobic capacity, and boosting cellular immunity.

Although the pharmacologically active components of cordyceps remain unknown, at least two chemical constituents; cordycepin (deoxyadenosine) and cordycepic acid (mannitol) have been identified and suggested as being the active compounds in improving lung function and increasing energy levels and sex drive.

This powerful, yet gentle and natural fungul herb effectively prevents and treats a wide variety of diseases and health problems.

- Diseases of the respiratory system like asthma, tuberculosis, and chronic bronchitis.
- Kidney troubles
- Heart problems including cardiovascular disease and hypertension.
- Leukopenia and health problems caused by radiotherapy and chemotherapy.
- Insomnia, fatigue, stress, and afflictions of the nervous system.
- Acute and chronic hepatitis, cirrhosis, and tumors of many kinds.

- Soothes the effects of many hard-to-cure diseases by improving immunity and strengthening your body's resistance to bacteria and viruses.

#### **4. MARKETING**

##### A. Production Volume and Trade

In the remote districts, it is sold at NRs 3 to 5 per piece, and in India it is sold at about NRs 28,000 per Kg. There are about 3,500 – 3,600 pieces per Kg of *Yartshagumba*.

##### B. Current Market Channel

Collector -> Village trader -> Regional trader -> wholesaler -> exporter

##### C. Current Processing

There is both neither processing nor any kind of value-additive works currently being done in Nepal except drying (sun drying) and grading (separation of products according to size). For storage purpose, Yarsagumba should get a treatment immediately after collection. This treatment does not require any sophistication but simply a fast drying process. If there is no sun, the fungus is heated over an open fire for 5 to 7 minutes.

##### D. Variability and Risk

If caught with Yarsagumba, the royalty rate is NRs. 500/fungus for judicial purpose (Forest Rules, 1995).

#### **5. SOCIO-ECONOMIC AND POLICY ISSUES**

##### A. Socioeconomic factors of existing activities

Collection and trading of this product has been banned for nearly a decade by the government without any scientific reason. However, illicit collection and trade of this product still continues. It is one of the major income generating resources of the Himalayan population.

##### B. HMG Policy on Collection, Processing, and Trade

###### 1. Current Policy

This product is banned for collection, use, sale, distribution, transportation and export. Harvestable fungal body disperses its spores for regeneration (some of the spores come in contact with the larvae) before it is collected for trade. No scientific reasoning was found behind the ban on the collection and trade of *Yartshagumba*.

## 2. Policy Constraints

The country is losing the revenue that can be collected from Yartshagumba. At the same time this ban has harassed the farmers or collectors striving in the high mountains. Thus, most of the collectors, traders and local people opposed this system. They see no genuine reason behind this ineffective restriction, which is promoting smuggling.

## 6. REFERENCES

IUCN Nepal. 2000. *National Register of Medicinal Plants*. Kathmandu: IUCN Nepal. Ix + 163 pp.

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