

TRACING HISTORICAL PERSPECTIVE OF *CORDYCEPS SINENSIS*- AN APHRODISIAC IN SIKKIM HIMĀLAYA

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Cordyceps sinensis (Berk) sacc is a well known fungus, and traditionally used as an aphrodisiac and tonic in North Sikkim. Aphrodisiac is an agent that increases and arouses sexual desire that makes sex more attainable and/or pleasurable. The Sikkim Himālaya is a well known treasure trove and biological hotspot and the people of North Sikkim have been relying on this plant for centuries as an aphrodisiac in the harsh high altitude environment. There is a long history of its use as aphrodisiac supported by scientific evidences. A study was conducted in between June 2008 and September 2009 to know the medicinal uses of this fungus by local people and folk healers. The claim that it can combat sexual dysfunction and will be the alternative natural product to challenge Viagra could be established only after clinical validation in well designed research protocol.

Key words: Aphrodisiac, *Cordyceps sinensis*, North Sikkim, Sexual dysfunction, *Yercha gumba*

INTRODUCTION

The sexual behaviour of human being is unique in the animal kingdom. It is not only an expression of instinctual mating rituals but also serve a major role in cementing the emotional bonds of two partners. Many cultures, customs, laws, fantasies and art of sexual acts are associated with it¹. When this capacity is diminished or disrupted, the psychosomatic implications can range from minor to catastrophic, depending on the individual constitution and situation. Therefore, the Āyurveda considers treatment of sexual dysfunction as imperative as it can have

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a profound effect on the well being of the individual. Maharṣi Caraka prescribed some aphrodisiacs before undertaking sexual intercourse. The idea was to promote the quantity and quality of semen along with the sexual desire, preference and enjoyment and to create good progeny². The sexual desire and performance are exceedingly complex, involving an intricate interplay of emotional, neurological and vascular events in a specific sequence. In general, we believed that the most important predictor of good sexual life is good in mental and physical health³. In Āyurveda, the sexual act is performed to settle passion (*kāma*) and brings euphoria after the orgasm. The other advantage is that it regulates the blood circulation, energy utilization and relaxes the nervous system after the completion of sexual act. The classical Chinese literature say: if one regulates his sexual pleasure he will feel at peace and attain a long life. It is also used to say that women could fake an orgasm but men could not fake an erection. 15% of men over the age of fifty are impotent and 40% of forty years old men experience some degree of erectile problems. Throughout the history, many foods, drinks, medicine, behaviors or aphrodisiac an agent that increases and arouses sexual desire have been used for making sex more attainable and/or pleasurable. The term 'aphrodisiac' is derived from *Aphrodite*, the goddess of love and sexuality. It is not only a stimulant to engorge the penis, but also that renews a desire for sexual intercourse when this desire is lacking for some reasons⁴.

Probably the first known sex stimulant was human body odor. Vātsāyana's *Kāmasūtra* is the first literature from India that describes the art of sex in a scientific way. Many herbs, foods and sexual behavior are described in *Vājīkarana* context of Āyurveda in *Caraka Saṃhitā* (200 BC)⁵. Julius Caesar (100-44 BC) said perfumes used by human-being is also an indicator of the "Fire of Love". The first modern perfume appeared in 1882, called "Fougere Royale." It was designed for men, to attract women. In 1986 "Pheromones" were said to help turn on people who smelled them for sexual arousal. Starfish, *Remora* (sucking fish), dried human marrow, and *Sanguis menstruus* (menstrual blood) were used as sex stimulant in ancient Rome. Later, in the Middle Ages, the metals like -gold and silver were used as aphrodisiacs. Horns of rhinoceros, penis of tiger, oysters, almond etc are also used as aphrodisiacs in Chinese medicine. The first chemical aphrodisiac *Yohimbine* comes from inner bark of West African tree *Corynantha yohimbe* and has been used to initiate and prolong sexual arousal in men. The medicinal plants Gingseng, Saffron (*Crocus sativus*), *Kapikacchu* (*Mukuna prurieta*), Śveta musali (*Asperagus adscendens*), Garlic (*Allium*

sativum), Sparrow meat, *Śilājātu* (*Asphaltum*), *Aśvagandhā* (*Withania somnifera*) have the reputation as aphrodisiacs. *Myristica fragrans* Houtt. (nutmeg) has been mentioned in Unāni medicine to be of value in the management of male sexual disorders. Skin of deer and Ginger is specially used as female aphrodisiac in some tribal communities of Orissa⁶. Viagra and Levita are not considered as aphrodisiacs, because they do not have any direct effect on Central Nervous System but they help enabling the erection⁷.

The Himālaya has a great wealth of medicinal plants and traditional knowledge. More than 50% of the ethno- medicinally important species of India are from the Himālayan region. Nearly, 1748 species of medicinal plants are found Himālayan region⁸. Most of the rare and endogenous Himālayan medicinal plants are used in Āyurveda as *rasāyana* (rejuvenation drug)⁹. The Sikkim Himālaya is a well known treasure trove and biological hotspot in the world. The people of North Sikkim mostly rely on traditional knowledge of the bio- resources for their survival in the harsh high altitude environment¹⁰. The *Cordyceps sinensis* (Berk) sacc is a well known fungus, and traditionally used as an aphrodisiac and tonic in North Sikkim and other Himālayan regions. It is highly valued traditional medicine used in China, Nepal, Bhutan and India. Internationally it is regarded as Himālayan Viagra or Himālayan aphrodisiac. This Himālayan aphrodisiac is widely available in alpine zones of Sikkim Himālaya, Uttaranchal, Himachal Pradesh, Western Nepal, Tibet and Bhutan¹¹.

GENERAL DESCRIPTION OF *CORDYCEPS SINENSIS* -HIMĀLAYAN APHRODISIACS

The Historical and general reference of Himālayan aphrodisiacs refers to *Cordyceps sinensis* (Berk) sacc. It was discovered about 2000 years ago as exotic medicinal mushroom described in traditional Chinese and Tibetan medicine. The British mycologist Dr M.J. Berkelesy first described it in 1843 as *Sphaeria sinensis* Berk. Later in 1878, Andrea Saccardo renamed it as *Cordyceps sinensis* (Berk) sacc¹². The name *Cordyceps* comes from Latin word: meaning *Cordl* (club) and *ceps*(head).

The normal harvesting period stretches from month of April to August. It grows only at the high altitude regions of about 3800 meters above the sea level, in the cold, grassy, alpine meadows of the mountain Himālaya. This fungus is parasitic in nature.

The base of this mushroom first originates from an insect larval host (*Hepialis armoricanus* family- Hepialidac) and ends at the club like cap, including the *stipe* and *stroma*. The fruit body is dark brown to black, and the root of organism, the larval body pervaded by the mycelium is yellowish to brown in colour¹³. The immature larve (host) on which the *Cordyceps* (parasite) grows usually lies about 6 inches below the ground surface. As the fungus approaches maturity, it consumes more than 90% of infected insect effectively to mummify the host. As the *stroma* matures, it swells up and develops *perihelia*. The average weight of *Cordyceps* is about 300-500mg¹⁴.

Table 1. Mycological Features of *Cordyceps sinensis*, the Himālayan aphrodisiac¹⁵

English name	Caterpillar fungus, Cordyceps mushroom
Latin name	<i>Cordyceps sinensis</i> .
Phlum	Ascomycota
Class	Ascomycetes
Order	Hypocreales
Family	Clavicipataceae.
Local Name	<i>Yarsa gumba, Yarcha gumba,</i>
Nepali Name	<i>Keera jhar, Jeevan buti, Keeda ghass, Chyou kira, Sanjeevani buti.</i>
Chinese Name	Dong chong xi cao
Japanese	Tocheikasa
Related species	There are more than 680 types of so called Cordyceps are found world wide today. Such as <i>Cordyceps militaris</i> , <i>Cordyceps barnesii</i> , <i>Cordyceps ophioglossoides</i> , <i>Cordyceps hyphae</i> , <i>C. nutans</i> , <i>C. nepalensis</i> , etc

History and Traditional Use

This Himālayan aphrodisiac was discovered about 1500 years ago in Tibet, surrounding parts of Sikkim and Nepal by the Yāk herders who observed that their Yāk became energetic after eating this fungus¹⁶. About 1000 years later, the Emperor's physician in the Qing Dynasty learned and used this knowledge with their own wisdom to develop powerful aphrodisiacs. The first reference to *Cordyceps* as a medicinal fungus occurred around 101 BC by an anonymous writer in a book titled, *Sheng Nung Bon Cas Chien (The Classic Herbal of the Divine Plowman)*¹⁷. The another written record of the *Cordyceps* fungus comes from China, in the year 620 AD, at the time of the Tang Dynasty (618 AD-907 AD), bringing substance to the once intangible allegorical narrative, which spoke a magical creature, whose annual existence alluded to a miraculous transformation from animal to plant in summer, and then again from plant to animal in winter. In

1757, the earliest objective and scientifically reliable description of *Cordyceps* fungus was written by author Wu-Yiluo in the Ben Cao Congxin (New Compilation of Materia Medica) during Qing Dynasty¹⁸. In Chinese medicine *Cordyceps sinensis* is considered sweet and warm, it enters the lung and kidney channels; the typical dosage is 3-9 grams. Western descriptions of the health benefits of the *Cordyceps* fungus came in the eighteenth century. The first such publication came from French Jesuit priest named Perennin Jean Baptiste du Halde, who recounted his experience with this Himālayan aphrodisiac while he was a guest at emperor's court in China. In 1757 *Cordyceps* makes its first appearance in a medical text - *New Compilation of Materia Medica*¹⁹

Its current high international profile and demand developed only sometimes in 1993 when many Chinese long distance runners broke world record by using this *Cordyceps* fungus. In mid nineteenth century this *Cordyceps* fungus was marketed in United State.

The first Tibetan author who described *Yartsa gunbu* seems to be the famous Tibetan doctor Zurkhar Nyamnyi Dorje (1439-1475) mentioned above in “An Ocean of Aphrodisiacal Qualities - A special work, the practitioner who founded the so-called Zur Medical tradition. In his treatise *Ten Millions of Instructions: A Relic* (commonly and incorrectly also referred to as “Oral Instructions on a Myriad of Medicines”), he mentions *Yartsa gunbu* among the drugs that cure the *rotsa* (*ro tsa*) ailments—those concerning sexual virility. Collection, trade and use of *Yartsa gunbu* (*dbYar rTswa dGun 'Bu*), has a long-standing history in Rigpa Sowa where it is classified as “medicinal essences” (*rTsi sMan*). According to Phuntsho Namgyel, although knowledge of cordyceps as an important medicinal plant exists in the Himālayan kingdom of Bhutan, the Bhutanese traditional medicine system, which is similar to Tibetan medicine, started incorporating it in its formulations only a few years ago.^{20,21}

The traditional healers of Sikkim have been using this fungus for eighteen diseases, maximum use in form of self medication and folk healer's recommendation is for aphrodisiac use. A study was conducted in between June 2008 and September 2009 to know the medicinal uses of this fungus by local people and folk healers. The strengths of the claims are evaluated by the numbers of user for an illness. It was found that this fungus is used for male and female sexual dysfunction, to restore the general health and appetite and to promote longevity in Lachung & Lachen area of North Sikkim traditionally. The person of both sexes usually uses one piece of *C. sinensis* with one cup of milk for enhancing their sexual potency

and desire. The Bhutia communities put one piece *C. sinensis* in one cup of local made alcohol (*chang*) and leave for one hour and drink in the morning and evening as an aphrodisiac. Some use hot water instead of alcohol. They said it is more potent than Ginseng and also used in the treatment of cancer, fatigue, to relieve chronic pain, tuberculosis and to treat liver and kidney ailments. The people of North Sikkim believed that this medicine has been used by our ancestors before Chogel period in between 1200-1600 BC. But the awareness about its uses has doubled after 1995 only. From 1997 to 2009 prices have increased by 500%, on average of over 20% per year in Tibet.

In 2007, 1 kg of dried *Yartsa gunbu* costs in Lhasa varied from •2,000 to • 8,000 depending on quality²². In Chinese cities the best fungi can cost •24,000/kg, more than gold. The cost of one kg of wild collected *Cordyceps* fungus is about 1 lakh in India²³ and forty to sixty rupees per piece in Sikkim. Due to the rarity and high prices of the wild collected variety, attempts have long been made to cultivate *Cordyceps*. After much early frustration in attempted cultivation, commercially viable methods were finally achieved in the late 1970's. By the mid 1980's, the majority of *Cordyceps* available in the world's marketplace was artificially cultivated²⁴.

Table 2. Traditional uses of *Cordyceps sinensis* in North Sikkim²⁵

S.N.	Illness	Strength of the claims
1	Erectile Dysfunction	++++
2	Female aphrodisiac	+++
3	Infertility	++
4	General weakness	+++
5	Tuberculosis	++
6	Bronchitis	++
7	Malignant Tumor	+++
8	Rhinitis	++
9	Rheumatism	+
10	Arthritis	++
11	Jaundice	++
12	Prostate enlargement	++
13	Liver diseases	+++
14	Kidney diseases	+++
15	Coronary Heart Disease	+
16	Chronic pain	++
17	Sciatica & backache	++
18	Low BP & dizziness	+++

SCIENTIFIC EVIDENCES

Cordyceps can combat sexual dysfunction and may be an alternative natural product to challenge Viagra. Three separate Chinese double-blind and placebo-controlled studies of *Cordyceps* with over 200 men with “reduced libido and other sexual problems” showed remarkable results. On average, 64% of the *Cordyceps*-users reported significant improvement at the conclusion of the experimental period compared with 24% of the placebo group. In another double-blind, placebo-controlled study conducted with 21 elderly women with similar complaints, 90% reported improvements in their condition following the use of *Cordyceps* compared with none in the control group^{26,27}. There are three likely contributing factors why *Cordyceps sinensis* appears to have an effect on sexual dysfunction:

Firstly *Cordyceps sinensis* has been shown to improve physical vitality and stamina in general.^{28,29,30} In 1993, a group of nine Chinese women set world records at the Chinese National Games. When asked about the secret to their success, they attributed it to their use of *Cordyceps*.^{31, 32}

Secondly *Cordyceps sinensis* helps dilate blood vessels and increase blood flow,^{33,34} which is certainly an important factor of erectile function.

Thirdly and perhaps most important of all is that two studies have shown *Cordyceps sinensis* to “significantly increase” the production of testosterone in males.^{35,36}

CONCLUSION

Cordyceps sinensis grows over much of the area traditionally inhabited by populations of Tibetan language and culture, and since its citation in Tibetan medical treatises pre-dates its mentioning in Chinese medical texts by second centuries, it may be assumed that Tibetan people were probably the first to notice this fungus thriving on the high pasturelands, examine its morphological traits, understand its biological features, assess its qualities and therapeutic properties, and to attribute it a name. It is remarkable and difficult to explain that this medicinal fungus, so highly praised as a tonic and aphrodisiac by Zurkhar Namnyi Dorje in the 15th century, is not mentioned in many Tibetan *materia medica*. While this interesting fungus is used in some Tibetan medicinal formulations, it is certainly not employed as heavily as in Chinese culture. The demand for *Cordyceps* has also compounded exponentially in this same time frame, partly due to the fact

that the opening of China with trade to the west in the 1970's exposed many more people around the world to the concepts and practices of Traditional Chinese Medicine (TCM). *Cordyceps* has a long history of use as Himalayan aphrodisiac in Sikkim and other Himālayan states of India & Nepal. The contemporary traditional practitioners and people of North Sikkim have been using this fungus as aphrodisiac before the time of Chogel. So it can combat sexual dysfunction and will be the alternative natural product to challenge Viagra after clinical validation of the claims in well designed research protocol.

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