Review Article

Shilajit - A Wonder Drug of Ayurveda: An Overview

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Received: 15-09-2019; **Revised:** 28-10-2019; **Accepted:** 04-11-2019.

ABSTRACT

Shilajit is one of the Maharasa (classified drug) mentioned in classical texts. The first reference of Shilajit in classified text Charaka Samhita states that "metals like gold and others present in the rocks which receive heat and exudate is called Shilajit ". It is most important drug of Ayurveda and Folk medicine system. Shilajit is a sticky exudate from rock layers in high altitude zones of mountains, particularly in the rocks of Himalayas. It is formed by organic and plant compounds that have been compressed by layers of rock and slow decomposition of plants over centuries. As a result of a high temperature and pressure, the compounds can change into Shilajit. When layers of the material resurface, the sun's heat on the mountain slopes can cause material to seep out of rock cracks. It can be collected. The composition of Shilajit largely depends on the type of plants associated with the rocks. Shilajit is pale brown to blakish brown in color and bitter in taste and it's smell resembles cow's stale urine. In Ayurvedic texts, it is called as Shilajatu or Silajatu but is commonly known as Shilajit. Its sanskrit meaning is "conqueror of mountains and destroyer of weakness". Depending on abundance of metals present in the rocks, it has been classified by the texts into six types namely, Suvarna (gold), Rajat (silver), Tamra (copper), Lauha (iron), Naag (lead) and Vanga (tin). The Loha variety is commonly found and used therapeutically. The constituents present in Shilajit are mainly fulvic acid, dibenzo-α- pyrones, humic acids, humins together with fatty acids, triterpenes, aromatic carboxylic acids, phytophenols and many other phytochemicals. The primary component of Shilajit is fulvic acid which contribute to congnitive health. It has been used as rejuvenator and adaptogen for thousands of years as a part of traditional system of medicine in a number of countries. Many therpeutic properties are attributed due to presence of various compounds present in Shilajit which have been verified by modern scientific evaluation. It has been proved that Shilajit is truly a panacea of traditional medicine. The present article highlights the Ayurvedic description, chemical constituents and biological evaluation of Shilajit.

Keywords: Shilajit, Maharasha, Ayurvedic description, Chemical and Biological evaluation.

INTRODUCTION

Shilajit is considered as one of the wonder drug of Ayurveda. The first reference of Shilajit in Ayurvedic classic texts is found in the Charaka Samhita, where it is mentioned that " metals like gold and others are present in the rocks which receive heat and secrete the exudate, which is called Shilajit. Susruta Samhita also mentions that the mountains heat up and release a gum like substance called Shilajit. Shilajit is a thick tar-like substance with a color of dark brown which exudes from rocks of mountains predominately in Himalayas, Karkuram, Tibet, Caucasus, Atlai mountains and mountains of Gulgit Baltistan, Arunanchal Pradesh, Kashmir, Afghanistan, Bhutan, Nepal in the month of summer due to extreme heat of sun. It is formed from organic and plant compounds that have been compressed by layers of rocks. As a result of high temperature and pressure, the compounds can change into Shilajit. Due to sun's heat on mountains the Shilajit material seep out of rock cracks. Shilajit is spelled as Silajit, Shilajit, Shilajatu, Momiya and also known as Asphaltum. There are several other terms for Shilajit such as Dhaturas, Dhatusara, Shiladhatu etc. have been used in medical texts. The word Shilajit is composed of two parts "Shila" means rock and "jit" means having won. So its literary meaning is " conqueror of mountains". Its Sanskrit meaning is " Conqueror of mountains and destroyer of weakness"[1-4].

There are four different types of Shilajit: Tamra (copper), that is blue in color, Rajat (silver) which is white in color, Suvarna (gold) that is red in color and Lauha (iron) which is blackish brown in color. Two more varieties such as Naag (lead) and Vanga(tin) has also been mentioned. Susruta classified Shilajit into two groups according to smell: Gomutra-gandhi (smell like cow urine) and Karpura-gandhi (smell like camphor). The Lauha variety is commonly found in Himalayan ranges and is supposed to be most effective according to the therapeutic point of view[1].

The discovery of power of Shilajit is said to have been made by Himalayan villagers. They began to consume it and reported a broad spectrum of improvements in health and as powerful tonic. It states in Charaka Samhita "There is no curable disease in the universe which is not effectively curable by Shilajit, when administered at the appropriate time, adopting the prescribed method"[1].

It has been ascribed a number of pharmacological activities and has been used for ages as a rejuvenator and treatment of a number of disease condition. Modern scientific research has systematically validated a number of properties of Shilajit used in Indian medicine. Shilajit has

been used for thousands of years in Ayurvedic system of medicine, extensively for a variety of diseases. It has been in extensive use in the preparation of a number of medicines and their utility has been most dependable because of the presence of many biologically active chemical constituents[5-7].

Mythological Background

In ancient literature, Lord Shiva narrated the process of origin of the drug as during summer season, the mountains get heated up and as a result these mountains releases the extract of the exudate of Dhatu called as Shilajit. Hindus believe and there are many who claim to have met Sadhus and Yogis in the high altitude Himalaya ranges, who live and meditate for hundred of years without even getting old or sick. They are able to withstand harsh weather condition with virtually little or no warm clothes, still remain young and active throughout by taking the substances said to be Shilajit. Shilajit believed to be "Amrit" given by Lord Shiva to mankind for eternal youth and health. According to Charaka and Susruta, at the time of Samudra Manthan (churning ocean) by Gods and Demons due to friction, heat was generated and as a result great amount of sweat was formed. The sweat mixed with nectar thought to be divine by the Gods. The divine drug was distributed in little quantities to the mountains, the same thing melted due to sun rays and become Lac or Jatu like and hence Shilajit (shila: mountain + jit: won) got the name. Ayurveda thus believed the formation of Shilajit from mountains due to the intense sun heat[1,2,8].

Uses in Traditional Medicine

Shilajit is most important drug for many diseases. It was used as a drug in prehistoric periods. Shilajit acts an agent which enhances the property of other drugs. According to Ayurveda, Shilajit arrests the process of ageing and produces rejuvenation which are of two important aspects of an Ayurvedic rasayana. It is prescribed to treat fractures, osteoarthritis, spondolysis, chronic bronchitis, nervous disorders, epilepsy, anemia, angina, jaundice, menorrhagia and eczema. It has also been ascribed as a potent aphrodisiac property. It is useful for treating kidney stones, oedema, piles, internal antiseptic, adiposity, to reduce fat and anorevia. Traditionally, Shilajit is consumed by people from the north of India and Nepal and children usually take it with milk in their breakfast. The Sherpa claim to have Shilajit as a part of their diet, they constitute a population of strong men with very high level of healthy longevity. The traditional uses include its action in genitourinary disorders, enlarged spleen, epilepsy and hemorrhoids[9, 10.]

According to traditional Indian knowledge, Shilajit exerts action as a tonic, laxative, expectorants, anti-bilious, lithotriptic and antihypertensive when given internally and it acts as antiseptic, analgesic, deo-obstruent and germicide when applied externally. Shilajit is given alongwith milk to treat diabetes. It is used for applications of tongue and cheeks as a paint, prepared by mixing Shilajit in hot water. It is also instilled as nasal drops and ear drops. Allergic cough will diminish, can effectively applied for joint disorders, remove gastric intestinal track, in curing deep fissers with cracks[11].

Physical Properties

Shilajit samples from diverse regions of the earth have similar physical properties and qualitative chemical composition but they vary vividly in percentage ratio of components. Physical properties like solubility, pH etc is one of the vital and mandatory tests for standardisation. Solubility in water demonstrates that nearly 30-50% of the weight of Shilajit passes into the supernatent liquid and the remains includes minerals and plant residues in quantities depending on purity of Shilajit. Shilajit is sticky and tencious material with a shiny and polished surface easily soluble in water, alcohol and acetone. The studies reveal that only about 60% of the raw material is soluble in water. Shilajit samples did not soften, at ambient temperatures but remained hard and brittle so that it was difficult to cut off small pieces. The pH of 1% of aqueous solutions varied in the Shilajit obtained from different countries, namely 6.2 for India (Kumoan), 7.5 for Nepal (Dolpa), 6.8 for Pakistan (Peshawar) and 8.2 for Russia (Tien-Shan). When Shilajit samples were subjected to thermal analysis, simultaneous thermal analysis curves differed bwtween various heating runs indicating that samples of Shilajit are not uniform but expressed a batch dependence. The differences were prominent in intensity and signal from especially at higher temperature. In an oxidising atmosphere only exothermal process occur except during the dehydration range upto 150° C (about 7% water). This indicates that Shilajit predominantly consists of organic matter and the total mass loss in air amounts to 67.6%. In an inert atmosphere a completely different behavior is observed. The physiochemical study reveals that the Arjuna (*Terminalia arjuna*), purified sample of Shilajit exhibited pH 5.10, loss on drying 8.04%, ash value 18.76%, acid insoluble ash 10.57% and water soluble ash value 84.66%[12-14].

Purification

Shilajit being a natural exudation from rocks containing a large amount of contaminants like rock pieces, heavy metal ions, vegetable compounds, reactive free radicals, toxins and soil particles etc, which cause illness. Hence it is necessary to purify the Shilajit before using it for therapeutic purpose. Shilajit is purified as per classical methods, in decoction, with Triphala (powder of three medicinal plant fruits namely: *Embelica officinalis*, *Terminalia chebula*, *Terminalia belerica*) and expressed juice of *Bhringraja (Eclipta alba*) in an iron container successively for one day each. It may also be purified with by mixing Shilajit in water/cow milk[15,16].

Chemical Constituents

Shilajit from different regions contained a large variation of organic compounds that can be broadly grouped into humic acid (80-85%) of total organic mass and non-humic (15-20%) substances. Generally Shilajit contains 14-20%

humidity, 18-20% minerals, 13-17% proteins, 4-4.5% lipids, 3.3-6.5% steroids, 18-20% nitrogen free compounds, 1.5-2.0% carbohydrates and 0.5-0.8% alkaloids, amino acids and other compounds[10,12].

The chemical composition of Shilajit is a phytocomplex. The components, humins, humic acids and fulvic acids, are found in all Shilajit along with dilbenzo-α-pyrones which act as carrier of other substances. The humaric substances are the results of degradation of organic matter mainly vegatable substances which is the results of the action of many microorganism. A large amount of benzoic acid, benzoates, hippuric acid and their salts as active substances are reported from Shilajit. Chemical investigation of Shilajit carried by Ali and co workers furnished six compunds namely, shilajityl acetate, shilajitol, silacatechol, silaxanthone, shilaanthranil and naphsilajitone. The other molecules present in Shilajit are lipids, steroids, carbohydrates, alkaloids, amino acids, free fatty acids, coloring matters such as carotenoids and indigoids, coumarins, organic acids including adipic, succinic, citric, oxalic and tartaric acids, waxes, resins, polyphenols, essential oils, and vitamins like B and B_{12}, eldagic acid, latex gums, albumins, triterpenes, sterols, aromatic carbocylic acids, phenolic acids, tannoids and lignins[8,12,17-24].

Determination of heavy metals/minerals was carried out which gave the presence of Fe, Al, Zn, Cr, Mn, Mg, Co, Pb, K and Ca. The percentage of these metals are very minimal amount which are permisiible level as prescribed by World Health Organisation (WHO) and not associated with health effects[25].

Biological Investigations

Shilajit, an ancient traditional medicine has been ascribed a number of biological activities for the treatment of various diseases. It has been used as rejuvenator and adaptogen for thousands of years. Many therapeutic properties have been validated by modern scientific evalutaion. Fulvic acid is one of the major constituent of Shilajit. It is likely that the curative properties attributable to Shilajit are provided by the significant levels of fulvic acids that Shilajit contains considering that fulvic acid is known by its strong antioxidant actions and likely has systemic effects as compliment activator. The fulvic acid in Shilajit acts as carrier and catalyst to help effectively transfer nutrients and other compounds in human body. These actions help to promote the movement of other important minerals such as Ca, P, Mg etc into muscles tissues and bones[16,24,26].

Shilajit exhibited anti-inflammatory, analgesic, anti-diabetic, immunomodulatory, neotropic, anti-anxiety, anti-ulcer, anti-fungal, anti-viral, anti-AIDS, lowers serum cholestral, free radical scavenging, protection of mast cells from degranulation, spermatogenic, ovogenic, memory enhancer, anxiolytic, anti-allergic and neuroprotective activites. Shilajit aids alzheimer therapy, preventing cognitive disorder, ageing and antiviral. Shilajit is beneficial in dyslipidemia, atherosclosis, breathing trouble, chronic constipation, arthritic disorders, chronic dysmenorrhea or pelvis pain, frequent urination, high blood pressure in alchoholism, tachycardia, oligospermia, piles antilithiatic (stops formation of stones in kidney), carminative, mild laxation, blood detoxifier, antiseptic, epilepsy, leucorrhea, postrate enlargement, infertility due to oligospermia and antibacterial[8,27,28].

Shilajit contains humic acid and iron which may help in treating iron deficiency anemia and chronic fatigue because it contains more than 85 different minerals as well as fulvic and humic acids. Because of the board spectrum, Shilajit is thought to help the sickness of liver cancer. It is found that Shilajit helped the destruction of cancerous cells in the liver. Shilajit may also protect the heart and improve heart health. By taking Shilajit orally, reduce the obesity and this could mean less fatigue and more strength overtime. It has also been used to increase testosteron. Shilajit is also used externally for sprain, bruises, stops the itching and oozing of skin diseases and for inflammatory swelling arthritis[28].

CONCLUSION

Shilajit is a naturally occurring multi-component with humous rich blakish brown substance which is widely used in Indigenous system of medicine for the cure of variety of diseases and to accelerate the process of rejuvenation. It is mentioned and claimed as a panacea in classical texts. In other words it means a remedy for all diseases or universal medicine. Shilajit was obtained in mountain regions as exudates where the hilly tribes first identified its benifial use. It serves as potent tonic. Shilajit has nearly 85 ionic minerals and contains fulvic acid and humic acid together with many phytochemicals. It is prescribed as the best Rasayana in Ayurvedic texts. The present communication describes a comprehensive review on Shilajit highlighting the significance, sources, definition, varieties, mythological background, traditional uses, purification, physical and chemical investigation and biological evaluations. Apart from various claims regarding its therapeutic activity, it is need of the day that further research be undertaken based on modern scientific methods. The presented data will be useful for further studies.

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Source of Support: Nil, **Conflict of Interest:** None.