Therapeutic Potentials of “Shilajit Rasayana”-A Review

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ABSTRACT

Shilajit is a rejuvenator (‘Rasayana’) of traditional Hindu Ayurvedic origin, which clearly has attracted considerable interest in India. Shilajit is a blackish-brown exudation of variable consistency exuding from layers of rocks in many mountain ranges of the world, especially the Himalayas and Hindukush ranges of the Indian subcontinent. Shilajit has been used as a folk medicine for general physical strengthening, anti-aging, blood sugar stabilization, urinary tract rejuvenation, enhanced brain functioning potency, kidney rejuvenation, immune system strengthening, arthritis, hypertension as well as for treating many other conditions. Shilajit (botanical name: Asphaltum), also known as mineral pitch, is a natural exudate oozed from rocks during hot weather. Shilajit is a compact mass of vegetable organic matter, which is composed of a gummy matrix interspersed with vegetable fibers and minerals.

Keywords: Shilajit, Rasayana, Exudate.

INTRODUCTION

Shilajit is a rejuvenator (‘Rasayana’) of traditional Hindu Ayurvedic origin, which clearly has attracted considerable interest in India. Ayurvedic pharmacology classifies medicinal substances into different groups (e.g. ‘Rasayana’) according to their actions. Rasayana medicines improve the quality of ‘Rasa’ (plasma) and thus strengthen or promote the health of all tissues of the body. [1] Shilajit is blackish-brown exudation of variable consistency obtained from the steep rocks of different formation found in the Himalayas at altitudes between 1000-1500 m, from Arunachal Pradesh in the East, to Kashmir in the West. Shilajit is also found in other mountain ranges of the world, e.g., Afghanistan (Hinduksh, Badakh-Shan), Australia (Northern Pollock Ranges) and in the former USSR (Tien-Shan, Pair, Cancasus, Ural). [2-5]

Shilajit has urinous odour and slight bitter, saline, somewhat pungent and astringent taste. The purified substance is nearly completely soluble in water and has an acid reaction. [2]

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Shilajit is not a rock but a complex mixture of organic humic substances and humic nature, plant and microbial metabolites occurring in the rock rhizospheres. [6-9]

It is also called, Momio in Persian, myemu in Russian and mumie in German. [2, 6, 43]

Shilajit has been used for thousands of years, in one form or another, under the indigenous systems of medicine such as Ayurveda, Siddha and Unani. It is bitter in taste and its smell resembles pungent cow’s stale urine. [41-42]

Shilajit, an ancient traditional medicine has been ascribed a number of pharmacological activities and has been used for ages as a rejuvenator and for treating a number of disease conditions. [10] Shilajit is one such remedy, which has been in use as a folk medicine for over 3000 years as a rejuvenator and adaptogen. [11] Shilajit mainly consists of pale humus (around 80–85 %) and organic compounds derived from vegetation fossils that have been compressed under layers of rocks for hundreds of years and have undergone a high amount of metamorphosis due to the high temperature and pressure conditions prevalent there. [7, 12-14]

Varieties of Shilajit

There are four different varieties of shilajit which have been described in charka samhita, namely savrana, rajat, tamra and lauha shilajit. Savrana shilajit is gold shilajit and is red in colour. Tamra is a copper shilajit and is blue in colour. Rajat is a silver shilajit and is white in colour while the lauha shilajit is an iron-containing shilajit and is brownish-black in colour. Blue and Gold Shilajit are not found commonly and the variety mostly available is the Iron Shilajit which, from the therapeutic point of view, is considered to be active. [2, 11, 15-16]

Origin of Shilajit

There are many scientists who claim that shilajit exuding from a layer of rocks of mountains is basically of vegetative origin. [2, 17] Shilajit was variously described as bitumen varying greatly in consistency from a free flowing liquid to hard brittle solid; a mineral resin, a plant fossil exposed by the elevation of the Himalayas, a substance of mixed plant and animal origin and an inorganic material. [18-19]

Latex bearing plants, namely Euphorbia royleana Boiss and...
**TRADITIONAL USES**

In Ayurveda, the term maharasa denotes a group of drugs of mineral origin. Shilajit is an important drug of the ancient Hindu materi medicina and is extensively used by the Hindu physicians in a variety of diseases. It is said to be efficacious against phthisis, chronic bronchitis and asthma, digestive troubles, sexual and bladder calci
drop, nervous diseases, leprosy, diabetes, and fracture of bones. It is also used in parasitic diseases of the skin and as an antiphlogistic.  

**PHYTOCHEMISTRY**

Phytochemistry had existed in the reported literature on the nature and chemical constituents of Shilajit. It was reported to contain resins, fatty acids, benzoic and hippuric acids, albuminoids, amino acids and a number of minerals. 

Extensive chemical studies by Ghosal et al. [20-21] have indicated the occurrence of oxygenated biphenyls and three oxygenated 3, 4-benzocumarins, several phenolic , amino acid and triterpenes in Shilajit. 

Shilajit contains two classes of organic compounds, namely  

1. Humic substances  
2. Non-humic organic metabolites  

Humic substances are the major organic constituents of Shilajit present in an amount of about 80-85%. The humic substances can be further divided into three fractions  

1. Fulvic acids (Fas)  
2. Humic acids (Has)  
3. Humins (HMs)  

The Fas micropores of Shilajit are occupied by low molecular weight. Bioactive molecules e.g oxygenated dibenzene-alpha-pyrones and their dimeric and oligomeric equivalents, other low molecular weight phenolic entities and Fas of Shilajit act as an efficient carrier of several classes of drug molecules for uninterrupted systemic distribution and absorption,  

The non-humic substances of Shilajit are low molecular weight compounds of marine fossil, plant, and microbial origin, occurring in and around Shilajit bearing rocks. The remaining non-humic organic masses in Shilajit comprise a mixture of low molecular weight aromatic, aliphatic alicylic and heterocyclic (N- and S- containing) compounds of particular biological interest are low molecular weight oxygenated dibenzo-alpha-pyrones (DBP) and hydroxy acetophenones (HAPS).  

The two oxygenated dibenzo-alpha-pyrones, viz 3-hydroxydibenzo-alpha-pyrene and 3, 8 dihydroxy dibenzo-alpha-pyrene occurred both in the free form in the micropores of Has and Fas and also in conjugated forms in the humus of Shilajit.  

**GENERAL PHARMACOLOGICAL ACTIVITIES**

Shilajit extract have LD50 1g/kg. The general pharmacological activities shown by Shilajit are summarized below:  

**Anti-inflammatory**

Orally administered Shilajit (50 mg/kg) induced significant anti-inflammatory activity against carrageenan induced paw edema.  

**Analgesic**

Studies were conducted in albino mice to determine the effect of 50-200 per kg of Shilajit. The analgesic effect of Shilajit pretreatment were studies using the technique of hot wire induced tail-flick response. Shilajit was found to have analgesic activity (p, 0.001) in the dose of 200mg/kg i.p. The effect was significant during the first 60 min.  

**Antidiabetic**

Shilajit (50 & 100 mg/kg, p.o) had no discernible per se effect on blood glucose levels in normal rats but attenuated the hyperglycemic response of STZ.  

**Immunomodulatory**

Shilajit and its corresponding combined fractions, acted essentially as cell growth factors in both normal and tumour cells by maintaining membrane integrity. Thus, Ayurveda rasayan, Shilajit would be validated as currently available efficacious immunomodulator. It was found that the white blood cell activity was increased by shilajit extract. The observed activity increased as the dose of shilajit extract and time of exposure was increased. 

**Nootropic**

Shilajit at a dose of 50 mg/kg, p.o has significant nootropic activity as shown by passive avoidance learning and retention. It was found that processed shilajit and its active constituents (total ethyl acetate fraction and fulvic acids) significantly increased the learning acquisition and memory retention in old albino rats. 

**Anti-anxiety**

Shilajit at a dose of 10 mg/kg, p.o has significant anti-anxiety activity as proved by elevated plus-maze test which is comparable to that of diazepam (1 mg/kg, p.o). 

**Anti-ulcer**

Shilajit pretreatment at the dose of 100mg/kg orally reduced ulcer index in immobilization and aspirin induced gastric ulcers. In duodenal ulcers also, Shilajit pretreatment significantly reduced the incidence of ulcers induced by cysteamine in rats & histamine in guinea pigs. 

**Antiviral activity**

Shilajit is endowed with both immunopotentiating and viral load reducing properties. 

**Spermatogenic and ovogenic effects**

The administration of Shilajit to rats showed a remarkable increase in the number of sperm of the epididymus in male rats and in the number of ovulation induced rats in females. 

**Antifungal activity**

Methanolic extract of Shilajit at the concentration of 5000µg/ml was having excellent inhibitory activity against Alternaria cajani (95.12 % spore inhibition). 

**Protection of mast cells from degranulation**

The effects of fulvic acids,4-methoxy-6carbomethoxy biphenyl and 3,8-dihydroxy- pyrone were studied in relation to the degranulation of mast cells against noxious stimuli.
Shilajit and different combination of its constituents provided statistically significant protection to antigen-induced degranulation of sensitized mast cells, markedly invited the antigen-induced spasms of sensitized guinea pig ileum and prevent mast cell dispruption induced by compound 48/80. [24]

**Free radical scavenging and antioxidant effect**

Shilajit showed free radical scavenging & antioxidant effect against SO\(_2\), OH radical and paramagnetic nitric oxide (NO) depending on the concentration of Shilajit. [25] The antioxidant effects were concentration dependent. Higher concentrations of processed shilajit provided greater free radical protection. [15, 33]

**Anti-lipid-peroxidative Activity**

The effects of Shilajit on lipid liver homogenate were investigated. It inhibited lipid peroxidation induced by cumene hydroperoxide and PDP/Fe\(^{2+}\) complex in a dose dependent reduced glutathione content and inhibited ongoing lipid peroxidation, induced by these agents immediately after addition to the incubation system. [29]

A number of old ayurvedic texts have mentioned tremendous and a variety of uses of shilajit rasayana as a potential rejuvenator and immunomodulator. Today evidence based studies are needed to establish these facts so that these wonder drugs with multifarious therapeutic activities can be put to human use.

**REFERENCES**


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