SHILAJIT AN UNIQUE DRUG OF AYURVEDA
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ABSTRACT
Shilajit is a unique drug of Ayurveda. It has been used since centuries for the benefit of mankind. It is used in India and other countries also where it is known by different names like Mumijo, Mummio, Siberian ginseng, and many others. It is well documented in the Ayurvedic classical texts, where its types, methods of purification and incineration have been mentioned. Shilajit mainly contains humic substances like fulvic acid, humic acid, and humin. Shilajit has been used mentioned as Rasayana and Yogavahi and used in various ailments and physical strengthening, anti-ageing, immunomodulation, urinary tract disorders, skin ailments and many more. Research on Shilajit has shown that it contains fresh and modified remnants of humus—the characteristic organic constituent of the soil. The present article highlights the chemical constituents and Ayurvedic description of shilajit.

Keywords: Shilajit, Maharasas, Fulvic acid, humic acid, Rasayan

INTRODUCTION
Shilajit (Latin-Asphaltum punjabianum) is one of the Maharasas (classified drug) mentioned in the classical texts (Rasagranthas). It has many synonyms in the texts which suggest that it is obtained from the mountain tops, and is an exudate which is found in the summer season.

The first reference of Shilajit in classical texts is found in the Charak Samhita¹, where it mentions that, “metals like gold and others are present in the rocks which receive heat and secrete the exudate which is called Shilajit”. While Sushrut Samhita mentions that “in the months of Jyeshtha and Ashada the mountains (Himalayan) heat up and release a gum like substance called Shilajatu, which heals the body”². Depending on the abundance of the metal present in the rocks it has been classified by the texts into six types namely suvarna (gold), rajat (silver), tamra (copper), loha (Iron), naag (lead) and vanga (tin). It is also classified according to the characteristic smell, into two types Gomutragandhi (smells like cow urine) and Karpuragandhi (smells like camphor). Gomutragandhi is further classified into Sasatva (containing active principles) and Nisatva (does not contain active principles).

The classical texts have also mentioned which variety of Shilajit is acceptable. The properties of acceptable variety are as follows:

It should puff upon subjected to fire and burn without smoke. On adding to water it should not dissolve completely but leave a trail and disintegrates as it travels from the surface of the water to the bottom of the container³.
Incurrence:
In India it is found in the Kumaon region, at altitudes of 1000-5000m from Arunachal Pradesh in the east to Kashmir in the West. It is also found in Afghanistan, Nepal, Pakistan, China, Tibet and USSR (4).

Aim and Objectives:
1. To introduce the classical textual information available on Shilajit.
2. To correlate its chemical constituents and its bioactivity.
3. To highlight the importance of Shilajatu bhasma.

Materials and Methods:
These methods of purification are unique to Ayurveda where Shilajatu undergoes purification with herbal decoctions. The importance of purification is as follows
- Shilajatu becomes free of impurities which are visible and invisible.
- Shilajatu becomes more bioassimilable.
- Inorganic trace elements are added in the process of purification.

Methods of Purification:
According to classical texts Shilajatu when used internally has to undergo purification as it is exposed to the soil and rocks of the mountain ranges. Shilajatu in its crude form is added to decoctions which are alkaline and sour in nature.

It can also be purified in Decoction of Triphala(powder of three medicinal fruits namely Embelia officinalis, Terminalia chebula, Terminalia bellerica) Bhringaraj swarasa (juice of Eclipta alba) and other liquid media prescribed in Ayurveda texts. After purification it is ready to be used internally. Purification will remove the dirt/particles present in it, and make it more bioassimilable.

Constituents of Shilajit:
Physical characteristics—It is a tar like/gum like substance which oozes out of the cracks of the mountains in summer season.

Chemical characteristics—Shilajit is not a rock but a complex mixture of organic humic substances and non humic in nature, plant and microbial metabolites occurring in the rock rhizospheres(4). Shilajit mainly consists of humic substances like fulvic acid, humic acid, triterpenes, selenium, phospholipids and nearly 85 ionic minerals. It also contains non humic substances, which are low molecular weight compounds of marine fossil, plant and microbial origin, occurring in and around shilajit bearing rocks. The humic substances include Fulvic acids, Humic acids and Humins. It mainly contains fulvic acid which is an important mineral. It is a richest source of ionic minerals and other elements which are commonly depleted in our soil today. (5)

Incineration:
This process involves association and dissociation. The compound after purification is subjected to heat under a controlled temperature. (6)

Preparation of bhasma (calx) is mentioned in the Rasasgrantha. Purified Shilajatu is added to pure Manashila (Arsenic bisulphide), pure Gandhak (Sulphur) and Pure Hartal (Arsenic trisulphide) each one part and together it is mixed with the help of Matulunga(Citrus medica) juice and triturated in the Khalva yantra. Pellets are made from this mixture and dried. These dried pellets are then kept in earthen casseroles, sealed with mud and cloth(seven layers) and subjected to heating grade of Kampottu (heat of 8 cow dung cakes). This will yield us Shilajatu bhasma (calx). (7)

Uses of Shilajatu:
Shilajatu has been traditionally used in the Urinary disorders, Urinary stones, Diabetes, Heart conditions, Anti aging and Rejuvenation and Vitality. (8)

Adaptogen:
Shilajit can be called as a mineral rich adaptogen\(^9\). The fulvic acid in shilajit acts as a carrier and catalyst to help effectively transfer nutrients and other compounds in the human body. These actions help to promote the movement of other important minerals, especially calcium, phosphorous, and magnesium into muscles tissues and bones. There are also ranges of fulvic acid molecules which have the ability to react with cells and uniquely produce new mineral compound \(^{10}\). Shilajit contains 85 ionic minerals. Ionic minerals are more easily transported and absorbed in the digestive tract because they are "charged" and require less energy for their immediate break down and utilization.\(^{11}\)

The structure of humic acid molecule has variety of components including quinone, phenol, catechol and sugar moieties.\(^{12}\) Humic acid is formed from the microbial degradation of dead plant matter, like lignin. They are resistant to further biodegradation.

**Bioactivity:**

The effect of Shilajit, as reported in the Ayurvedic literature, seems to suggest its influence on endocrine, autonomic, and brain functional changes. The discovery that these changes can be mediated by cytokines, released by activated immune cells, has opened up possibilities for similar mechanism of action of Shilajit. Certain combinations of the phenolic and triterpenoid constituents and the fulvic acids of Shilajit produced significant effects against restraint stress-induced ulcers. Similar anti-inflammatory, analgesic, anti-diabetic, immunomodulatory, anti-anxiety properties of Shilajit have been seen.\(^{14-17}\)

**DISCUSSION**

Shilajatu has already been mentioned as Rasayana. Rasayana can be described as an immunomodulator, rejuvenator, and anti-ageing. These properties are already exhibited on use of Shilajatu. The latest researches prove the presence of 85 ionic minerals in Shilajatu which proves its Rasayana and Vajikaran property. The texts also mention further processing of the purified Shilajatu to Shilajatu Bhasma. The properties of Shilajatu Bhasma are higher than the properties of Purified Shilajatu. It will be interesting to see more studies on its bhasma and its mineral content.

**CONCLUSION**

Shilajit according to classical texts is supposed to be exudates from the top of the mountains, but after chemical analysis is found to be a plant fossil mostly generated by *Euphorbea royalena* and *Trifolium repens* and many more bryophytes. It is a mineral enriched adaptogen. It is also mentioned as Rasayana in classical texts. It has nearly 85 ionic minerals and mainly contains fulvic acid and humic acid. Its purification according to classical texts is necessary as it contains dirt and soil of the place of origin. Changes, if any, due to purification as per described in classical texts would be interesting to study. This paper was an attempt to present an Ayurveda perspective of Shilajit and its chemical composition.

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