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## SHUDDHA SHILAJATU - RASAYANA WITH ITS PHARMACOLOGICAL ACTIONS

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### ABSTRACT:

*Rasayana* is the medicine which increases the “Ojas” in the healthy person, cures diseases in ailing individuals and also delays ageing. *Shilajatu* (Mineral pitch) is a herbo-mineral compound with many beneficial therapeutic properties. The effects of *Shilajatu*, as reported in the Ayurvedic literature, seem to suggest its influence on endocrine, autonomic, and brain functional changes. As by Charaka, benefits of *Shilajatu* are antiaging, disease modifying capability, help reduce risk of degenerative, improve energy level, as powerful aphrodisiac. It is considered top rated adaptogen that is anti stress/anti ulcerogenic. It acts as analgesic and anti inflammatory, anti allergic and cognition enhancer. It has blood sugar lowering effects. It also modulates neurochemicals. It is highly bioavailable and chelated. Extensive and comprehensive studies on *Shilajatu* and its constituents would validate the Ayurvedic *Rasayana*, *Shilajatu*, as more effective than several currently available clinically efficacious immunomodulators. It is stated in Charaka that, there is no such *sadhya roga* by which with the effect of *Shilajatu* cannot be treated. *Shilajatu* is benefited in all medicinal uses, with all scientific manner when consumed eradicates whichever be the diseases, and strengthens the *bala* of the person. Thus, this paper gives the way, how *Shuddha Shilajatu* work as *Rasayana* with its pharmacological studies.

**Keywords:** *Pharmacological study, Rasayana, Shuddha Shilajatu.*

## INTRODUCTION

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It is stated in *Charaka* that, there is no such *sadhya roga* by which with the effect of *Shilajatu* cannot be treated. *Shilajatu* is beneficiated in all medicinal uses, with all scientific manner when consumed eradicates whichever be the diseases, and strengthens the *bala* of the person.<sup>1</sup>

*Rasayana* is the medicine which increases the “*Ojas*” in the healthy person, cures diseases in ailing individuals and also delays ageing<sup>2,3</sup>. *Shilajatu* (Mineral pitch) is a herbo-mineral compound with many beneficial therapeutic properties<sup>4</sup>. Benefits of *Shilajatu* are antiaging, disease modifying capability, help reduce risk of degenerative, improve energy level, as powerful aphrodisiac. It is considered top rated adaptogen that is anti-stress/anti ulcerogenic. It acts as analgesic and anti-inflammatory, anti-allergic and cognition enhancer. It has blood sugar lowering effects. It also modulates neurochemicals. It is highly bioavailable and chelated. Extensive and comprehensive studies on *Shilajatu* and its constituents would validate the *Ayurvedic Rasayana*, *Shilajatu*, as more effective than several currently available clinically efficacious immunomodulators. The effects of *Shilajatu*, as reported in the *Ayurvedic literature*, seem to suggest its influence on

endocrine, autonomic, and brain functional changes.<sup>5</sup>

**MATERIALS:**

*Bruhatrayi* and *Laghutrayi* of *Ayurvedic texts*.

Modern Texts related to Pharmacology.

Research journals in *Ayurveda*.

**REVIEW OF LITERATURE****Conceptual Study:****ABOUT SHILAJATU**

*Shilajatu* as per the word meaning is "conqueror of mountains and destroyer of weakness"<sup>6</sup>.

**Vernacular Name**<sup>7</sup>

English – Black Bitumen, mineral pitch.

Latin – Asphaltum punjabinum or Bitumen judiek. Sanskrit – *Shilajatu*. Hindi – *Shilajit*.

Synonyms: *Shilajatu*; *Atithi*; *Girijatu*; *Adrijatu*; *Jatu*; *Ashmasaar*; *Shailya*; *Shailaj*; *Shailydhatu*; *Shailodbhava*.

***Shilajatu Prakaras***<sup>7</sup>

In the texts of *Rasashastra*, it is one among the *Maharajas* and exists in two types as 1. *Gomutra Gandhi Shilajatu* & 2. *Karpooa Gandhi Shilajatu*. Among the two types *Gomutra Gandhi Shilajatu* is considered as superior and used for preparation of medicine. The *Samhitas* have classified *Shilajatu* into 4 to 6 types, depending on the metal ore found in the mountains, from which the *Shilajatu* is collected.

*Swarnagarbha Girijata Shilajatu*–(cha, su, va). *Rajatagarbha Girijata Shilajatu*–(cha, su, va). *Tamragarbha Girijata Shilajatu*–(cha, su, va). *Lauhagarbha Girijata Shilajatu*–(cha, su, va). *Nagagarbha Girijata Shilajatu*–(su, va). *Vangagarbha Girijata Shilajatu*–(su, va).

**Table No: 1: Properties of Shilajatu (Gomutra) <sup>8</sup>**

Types	Rasa	Veerya	Vipak	Varna
Swarna	Madhur, Tikta	Sheeta	Katu	Raktabha
Rajata	Katu	Sheeta	Madhur	Sweta
Tamra	Tikta	Ushna	Katu	Like peacock's neck
Loha	Tikta, Lavana	Sheeta	Katu	Like black Guggul

**Shodhana Process:**

Classically in the texts the *shodhana* process is explained as *prakshalan* i.e. subjecting crude for wash in *kanji*, *yavakshara*, *gomutra* and then water. After this it must be dried in sunlight for many days.<sup>9</sup> One more process of *shodhana* is also told – 1) *Suryatapi* & 2) *Agnitapi*.<sup>10</sup> For both the process initially *triphala quath* is prepared.

- 1) In the *Suryatapi* process *Shilajatu* is added to the *Triphala quatha*, *Bhringaraja swaras* or milk, filtered through a cloth. Thus physical impurities were removed. The filterate is then kept under sunlight for drying for many days. In the due course of drying a cream like layer reddish black in colour is formed on it which must be removed and kept separately for drying repeatedly until the whole of *Shilajatu* is collected and dried in the form of cream like layer. This method is said to be the best method of *shodhana*.
- 2) In the *Agnitapi* process, *Shilajatu* is added to the *Triphala quatha* and boiled continuously till *Shilajatu* is obtained in a condensed form. It is then taken out and dried properly in sunlight.

This *Shodhita Shilajatu* is used as an ingredient in many formulations.

*Shuddha Shilajatu Lakshana (Gomutra):*  
11, 12

- 1) When *Shilajatu* is subjected to heat directly on fire –
  - a) It attains the form of *linga*.
  - b) Does not emit any smoke or fumes.
  - c) It does not dissolve in water quickly, but settles down in the form of *sutras*.
- 2) *Grahya Shilajatu lakshana* mentioned by *Sushruta*<sup>13</sup>, are – *Krishna varna*, *snigdha*, *laghu*, devoid of impurities like sand etc, presence of *gomutra gandha*.

**Pharmacological and Therapeutical properties of Gomutra Shilajatu:**

- *Rasa* – *Tikta, Lavana, Kashaya, Katu*
- *Guna* – *Guru, Snigdha, Mrudu, Sheeta*
- *Veerya* – *Sheeta (RT), Anushana (RRS)*
- *Vipaka* – *Katu*
- *Karma* – *Rasayana, Yogavahi, Sarvarogahara*
- *Doshaprabhava* – *Kaphahara, Tridoshaghna*
- *Vyadhiprabhava* – *Kaphaja roga, Kshaya, Prameha, Gulma, Pleeha, Unmada.*



**Effect of impure *Shilajatu*:**<sup>14</sup>

Impure *Shilajatu* if taken internally may produce *Daha*, *Shrama*, *Pittaprakopa*, *Raktavikara*, *Murccha*, *Agnimandya* and *Malabaddhata*. Hence it should be given for 7 days in 3gm dose.

Antidote for *Shilajatu*:<sup>15</sup>

To remove side effect of *Shilajatu*, the powder of Pepper mixed with ghrīt should be given for 7 days in 3gm dose.

***Karpura Shilajatu*:**<sup>16</sup> (Salt petre or Potassium nitrate,  $KNO_3$ ).

It is another variety of *Shilajatu*, which is collected from the alkaline soil. It is pale in colour and granular like sand. It may contain iron in traces along with other impurities as per *Rasa Prakash Sudhakar*. It is described as white as *Karpura* (Camphor). It is explosive to fire and is used in the preparation of gunpowder.

**Pharmacological and therapeutic properties:**

- 1) *Karma* – *Mutra roga*.
- 2) *Vyadhi prabhava* – *Mutrakrucchra*, *Ashmari*, *Prameha*, *Kamala* & *Panduroga*.

**Dose:**

1. For *Rasayana*:<sup>17</sup>

The usual dose varies from 12 grams to 46 grams.

- i) *Avar* or 1 *karsha* – *laghu matra* – 1 week. 12 grams.
- ii) *Madhyam* or 2 *karsha* – *madhyam matra* – 3 weeks. 23 grams.
- iii) *Pravar* or 3 *karsha* – *uttam matra* – 7 weeks. 46 grams

**2. For *Vyadhi nashak*:**<sup>18</sup>

- i) Upto 1 *tula* (100 *pala*) *sevana* – *rogi* becomes *madhumeha mukta*.

ii) Upto 10 *tula sevana* – 1 *sahasra varsha Ayuprapti*.

iii) Upto 1 *tula shilajatu sevana* – 100 year *Ayuprapti* (1 *Tula* – 400 *tola*).

***Anupana*:**<sup>19</sup>

*Godugdha*, *Shukta*, *Aushadaras*, *Yusha*, *Gomutra*, *Shuddha jala*, *Swaras*, *Kashayas*, Milk, Butter milk, *Mamsa rasa*, Decoction of herbal drugs.

***Vishishta Yoga*:**<sup>20</sup>

*Arogyavardhini vati*, *Chandraprabha vati*, *Shiva gutika*, *Shilajativadi vati*, *Tapyadi vati*, *Agnimukha vati*, *Yakshmarilouha*, *Yogaraj rasa*, *Lankeshvar rasa*, *Shilajativadi louha*.

**Chemical composition and chemistry in *Shilajatu*:**<sup>21</sup>

It was variously described, as a bitumen or mineral resin varying greatly in consistency from a free-flowing liquid to a hard brittle solid; a plant fossil exposed by a elevation of the Himalayas; a substance of mixed animal and plant origin. Twelve years after the publication of the circumstantial evidence for the contribution of plants in *Shilajit* formation obtained further direct evidence regarding the chemical character of *Shilajit*. *Shilajit*, from different regions, contained a large variety of organic compounds that can be broadly grouped into humic and non-humic substances.

The non-humic substances, in soil-sediment humus, are low mol. wt. organic compounds that are characterizable by chemical and spectroscopic methods. The humic substances, by contrast, do not exhibit any specific physical and chemical characteristics (e.g. sharp m. p., consistent elemental composition, consistent pH, well-defined IR and NMR spectra),

normally exhibited by characterizable organic compounds. Humic substances are produced by interaction of plants, algae, mosses, and microorganisms. The phytochemistry of vegetation around Shilajit-bearing rocks, therefore, constituted an important part. The common plant sources of humus, in mountain soils, are the perennial grasses and legumes, which possess finely branched root systems capable of regeneration. Other important sources of humus are the litter and latex of plants. Variation in the quality of *Shilajit* humus (both chemical and biological) is, therefore, conceivable. The other factors that cause variations in *Shilajit* humus are: (i) altitude and the nature of *Shilajit*-bearing rocks; (ii) atmospheric conditions (e.g. alternate wetting and drying); (iii) pH and moisture content of the rock source; and (iv) activity of the rhizospheric microorganisms and their exo-enzymes. The stability of the humus reserve depends on one or more of these factors. *Shilajit* samples collected from different places, as expected, exhibit variations in chemical characteristics and bioactivities.

The structures of the compounds in *Shilajit* were established by comprehensive spectroscopic analyses, crucial chemical transformations and synthesis. Pharmacological and immunological screening of these compounds, individually and in combination, established their significant contribution to the therapeutic efficacy of *Shilajit*. Among the other organic compounds contributing to the bioactivity of *Shilajit*, humic and fulvic acids, from *Shilajit* humus, are noteworthy.

#### HUMIC SUBSTANCES FROM SHILAJIT: <sup>21</sup>

Scanning electron microscopy and viscosity measurements of humic acids (HAs) and fulvic acids (FAs), from *Shilajit*, suggested for the FAs a relatively open, flexible structure punctured by voids (micropores) of different diameters, at different pH. Relatively mild degradation of *Shilajit* - HAs, by boiling with water, yielded several aliphatic (C-16 to C-20) and phenolic acids together with common sugars, glucose, arabinose, rhamnose and xylose. It is observed ubiquitous occurrence of the aucuparins and dibenzo- $\alpha$ -pyrones in the core of *Shilajit* from different regions. During systemic administration of *Shilajit*, these constituents, even if, present as minor entities, elicit their potent biological effects and are, therefore, regarded as markers of *Shilajit*.

#### BIOACTIVITY OF SHILAJIT AND ITS CONSTITUENTS: <sup>22</sup>

Clinical applications of *Shilajit* in Ayurveda, as a *Rasayana*, are well documented. The effects of *Shilajit*, as reported in the Ayurvedic literature, seem to suggest its influence on endocrine, autonomic, and brain functional changes. The discovery that these changes can be mediated by cytokines, released by activated immunologic cells has opened up possibilities for similar mechanism of action of *Shilajit*. Certain combinations of the phenolic and triterpenoid constituents and the FAs of *Shilajit* produced significant effects against restraint stress-induced ulcers. The mechanism of anti-ulcerogenic actions of *Shilajit* and its constituents was also evaluated. This was based on their effects on mucin contents, and on the concentrations of DNA and protein in the gastric juice. The

combinations provided significant resistance to mucosa against the effects of ulcerogens and also prevented the shedding of mucosal cells. The anti-allergic action of these compounds was successfully tested against antigen- and compound 48/80 (histamine releaser) - induced degranulation of mast cells.

The anti-stress activity of these compounds was suggested by their augmentation of murine swimming endurance exercises. The results obtained till now are sufficiently impressive to warrant expectation that more extensive and comprehensive studies on *Shilajit* and its constituents would validate the *Ayurvedic Rasayana, Shilajit*, as more effective than several currently available clinically efficacious immunomodulators.

Benefits of *Shilajatu*:<sup>20, 21</sup>

- **Disease Modifying Capability of Asphaltum:** This activity is commonly found in Autoimmune disorders like Rheumatoid Arthritis and manifests the symptoms. Researchers from Montana State University, USA found carboxylic group fraction of *Shilajit* and fulvic acid (II arabinogalactan) possessing complement fixating property.
- **Antiaging – Promotes Youthfulness and Longevity - Asphaltum:** The minerals and plant nutrients in *Shilajit* provide powerful antioxidants in body that scavenge free radicals and prevent degenerative changes in body.
- **Highly Bioavailable and Chelated Minerals:** Minerals need to be chelated, bound to a protein molecule, to be bioavailable. (Mineral assimilation without

chelation is only about 10 %.) Fulvic acid, a by-product of plant photosynthesis, is the strongest chelating agent known. Fulvic acid is what makes the trace minerals in *Shilajit* highly bioavailable. They act as free radical scavengers, supply vital electrolytes, buffers pH, enhance and transport nutrients, catalyze enzyme reactions, increase assimilation, chelate macro and trace minerals, and enhance electrochemical balance.

- ***Shilajit* Helps Reduce Risk of Degenerative Disorders:** *Shilajit* is capable of rendering harmful heavy metals from inside tissues and body harmless by turning them into organic and safe for body. Fulvic Acid converts it into Aluminum Silicate which is safe as it is present in staple foods as beans that we consume in sufficient quantity.
- **Asphaltum Improves Energy Levels:** It energizes the physiology without overstimulation or any negative effects by providing minerals, trace minerals and organic nutrients.
- **Asphaltum as Top Rated Adaptogen:** It is also a powerful Adaptogenic that improves natural resistance of body against disorders and enhances immunity.
- ***Shilajit* as Powerful Aphrodisiac for Men and Women:** It is an Aphrodisiac for both men and women. It improves vitality and libido. The health of reproductive system is maintained for optimal sexual enjoyment and fertility.



## DISCUSSION

*Rasayana* is formed by the union of two words *Rasa* (*Rasa dhatu*=nutrition) and *Ayana* (circulation and promotion). So from the literary meaning of *Rasa* and *Ayana*, it can be drawn that *Rasayana* is a regimen or substance with the help of which one can attain, metabolize and channelize the better quality of *Rasa* and other *Dhatus* upto smallest unit of the body. *Rasayana* deals with the science of nutrition, geriatric, and rejuvenation. There are a large number of potent medicines in *Rasa Shastra* which are described as *Rasayana*. As *Rasayana* word is used for 'Rejuvenation' while describing the

properties of substance or in specific chapters entitled *Rasayana*.<sup>23</sup> Benefits of *Shilajatu* are antiaging, disease modifying capability, help reduce risk of degenerative, improve energy level, as powerful aphrodisiac. So, going through *Rasa Shastra*, we find an extensive description of *Rasayana* with better herbo-mineral combinations. Thus by this we can change environment with modernization by better techniques of drug analysis which can help us in authenticating the *Rasayana* and their effects on health.

## CONCLUSION

*Rasayana* therapy helps to attain optimal physical strength, sharpness of sense organs, qualities of dhatus, longevity, immunity or *bala* and mental competence. *Shilajatu* has a unique beneficial effect in neurodegenerative disorders as per the word meaning its "conqueror of mountains and destroyer of weakness". The effects of *Shilajatu*, as reported in the Ayurvedic literature, seem to suggest its influence on endocrine, autonomic, and brain functional

changes. Extensive and comprehensive studies on *Shilajit* and its constituents would validate the *Ayurvedic Rasayana*, *Shilajatu*, as more effective than several currently available clinically efficacious immunomodulators. If branch of *Rasa Shastra* and *Rasayana* therapy of Ayurveda gets standardized, it will bring a revolution in Ayurveda and remarkable glory in society.

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