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SHODHAN OF *SHILAJIT* USING *TRIPHALA KWATH* AND ITS PHYSICO CHEMICAL ANALYSIS

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ABSTRACT

Found in the rocky highlands of the Himalayas, Altai, Caucasus, and other mountain ranges, *Shilajit* is a sticky, tar-like substance. It is created over many generations by the breakdown of plant and microbiological materials, and the sun's heat causes it to seep out of rock fissures. Because *Shilajit* has a higher efficacy and is recommended for a variety of illness, it has been utilized for millennia in ancient Indian Ayurvedic medicine as well as in other traditional medical systems. *Shilajit Shodhan*a (Purification) is referenced in Ayurvedic classical texts prior to its use as a therapeutic drug. *Shodhan*a is a process that includes improving a substance's medicinal qualities through purification. Various classical literature recommended varying methods and media for *Shodhan*a of *Shilajit*. Physico-chemical analysis of *Shilajit* purified by the reference of *Rasaratnasamuchaya* was performed. The *Triphala Kwath Shodhit Shilajit* was dried using water bath method initially and dried under the sun later. 99.4% of *Shudha Shilajit* was obtained. XRF analysis shown the composition of K, Ca, Fe, Cl, S, Si, Al, Cu, Zn and Mn in *Shodhit Shilajit*. The favorable season to perform the *Shilajit Shodhan* is summer.

KEYWORDS: *Shilajit*, *Shodhan* (Purification), *Triphala Kwath* (Decoction).

INTRODUCTION

Shilajit is a sticky, physiologically active organic matter that is brown to blackish. Its origin is said to be in Central Asia and is found on steep rocks in hilly places of the world. Its exact age is unknown. *Shilajit* is a tarry, solid, or elastic natural product that is usually in the form

of shapeless pieces with a smooth or unevenly porous surface and a distinct balsamic smell. At high altitudes between 1000 and 5000 meters, on the walls of caves embedded in rocks, or as rock exudates with specific weather conditions regarding summer and winter temperatures, sunshine duration, and precipitation amount, the organic exudate can be discovered. *Shilajit* can have a color ranging from blackish to brown. It tastes unpleasant and has an overpowering scent similar to stale cow urine.[1],[2]

Charaka Samhita states that, "*Shilajit* is the smooth, clean gum that is produced when heated metal stones, such as gold, in the mountains exude heat due to solar radiation." "A gelatinous substance that is secreted from the side of the mountains when they have become heated by the sun's rays in the months of *Jyaishta* (May-June) and *Aashadha* (June-July)," according to the *Sushruta Samhita*. *Shilajit* is referred to treat all bodily ailments. It is abundant in Nepal and the lower Himalayan slopes around Haridwar, Shimla.[3],[4]

Synonyms

Latin name –*Asphaltum Punjabinum*

English: Black Bitumen or Mineral Pitch, Asphalt, Mineral Pitch, Jew's pitch, Vegetable Asphalt

Sanskrit – *Shilajit, Shilajit, Silaras,*

Hindi – *Shilajit, Ral-yahudi,*

Gujarati*: Shilajit,*

Marathi: *Silajita,*

Bengali: *Silajat,*

Tamil: *Uerangyum,*

Tamil: *Perangyum, Uerangyum,*

Arabic: *Hajar-ul-musa,*

Persian: *Momiai Faqurual Yahud,*

Russian: *Mummio, Mumie.*

Meaning

In Sanskrit, *Shilajit* means 'winner of rock'. Another meaning is "sweat of the rock".[3]

Types of *Shilajit*

There are two types of *Shilajit*, one is a semi-hard, brownish black to dark, greasy resin that has a distinctive coniferous smell and bitter taste smelling like cow's urine (*Gomuthira Shilajit*) and a white variety with camphor odour called *Karpura Shilajit*.[1] Rasatarangini has classified *Shilajit* in four types, *Swarna* (Gold), *Rajata* (Silver), *Tamra* (Copper) and *Loha* (Iron).[5]

Need of *Shilajit Shodhan*

Shilajit needs proper purification processes to remove the physical impurities and to enhance the therapeutic efficiency of it. Impure *Shilajit* if taken internally may produce *Daha* (burning sensation), *Shrama* (exertion), *Pittaprakopa* (raised *Pitta dosha*), *Raktavikara* (blood disorders), *Murccha* (unconciousness), *Agnimandya* (decreased appetite), and *Malabaddhata* (constipation), hence it should be used after proper purification only.[6]

To overcome these adverse effects of impure *Shilajit*, as well as to separate physical impurities and eliminate chemical impurities *Shodhan* method is a need. *Shilajit* can be purified using liquid medias like *Gomutra* (Cow urine), *Triphala Kwath* (Decoction) and *Bhrungaraj swarasa* (Juice). *Agnitapi* (dried using fire source) and *Suryatapi* (dried under Sun) are the methods used in the drying process of purified *Shilajit*.

In this article, *Shilajit* was purified as per the reference of *Rasaratnasamuchaya* using *Triphala Kwath* as a *Shodhan* media.[7],[8],[9]

MATERIAL AND METHOD

1. Preparation of *Shodhan* media i.e. *Triphala Kwath*

Table 1.1: Material used in preparation of *Triphala Kwath.*

Sr No.	Content	Proportion	Quantity
1.	Coarse *Triphala*	1 part	2 kg
2.	Water	16 parts	32 L

Procedure followed for *Triphala Kwath* preparation

i. 2 kg of coarse powder of *Triphala* (mesh size 44) was taken in a SS vessel having capacity of 50 L.
ii. 16 times water (32 L) was added to it and the mixture was kept overnight (12 hr) for soaking.

iii. In morning, the mixture was kept on a medium gas flame to reduce up to 1/8th part as per the reference for *Kwath* preparation in *Sharangdhar samhita*.

iv. After reducing the mixture, it was filtered by cotton cloth.

v. The prepared decoction was measured and subjected for the *Shodhan* of *guggulu*. The obtained quantity of *Kwath* was 4 liter.

Table 1.2: Material used for *Shilajit Shodhan*.

Sr No.	Material	Quantity
1	*Ashudha Shilajit*	500gm
2	*Triphala Kwath*	4L

2. Determination of *Shilajit Shodhan*

Procedure of *Shilajit Shodhan*

i. *Shilajit* was converted into fine powder form.

ii. Freshly prepared *Triphala Kwath* was heated and powdered *Shilajit* was added to it.

iii. The prepared mixture was stirred to make a homogeneous solution.

iv. This solution was kept in an iron wok for 3 days.

v. On 4th day, the top semi-solid layer (supernatant part of fluid) formed over the solution was separated and filtered using cotton cloth.

vi. The filtrate obtained was heated on low flame to reduce the water content.

vii. To avoid charring of *Shilajit* at the base of vessel, it was heated on hot water bath till it became thick in consistency.

viii. The obtained *Shilajit* was transferred into the tray smeared by ghee and kept under sunlight for drying for 4 days.

ix. The *Shodhit Shilajit* thus obtained was powdered and further measured before storing.

The authentication test for *Shodhit Shilajit*

1. *Shilajit* was put on fire, it erected perpendicularly and burnt without smoke.
2. The *Shodhit Shilajit* was put in water through the tip of a thin erect glass and it came down slowly after spreading like fiber.
3. The *Shodhit Shilajit* had the smell of cow urine.[7]

RESULTS

During the process and after the purification process of *Shilajit,* following results were obtained.

Table 2.1: Changes in temperature, colour and consistency noted during the *Shodhan* process of *Shilajit.*

Sr No.	Stages	Temperature (^{0}C)	Colour	Consistency
1	On mixing of *Shilajit* with hot *Triphala Kwath*	55.3	Brownish Black	Liquid
2	Mixture after keeping for 3 days	34.1 (average)	Brownish black	semi-liquid
3	Heating of mixture at initial stage	34.3		
4	During *paka* process on low gas flame	60.4	Black	Semi-solid
5	During *paka* process on water bath	58.2		
6	After completion of *Shodhan* process	54.4	Dark black	Sticky
7	During drying process in sunlight	39.8		Powder

Table no 2.2: Organoleptic analysis of *Shilajit.*

Sr. No.	Organoleptic Analysis	Before *Shodhan*	After *Shodhan*
1	*Shabda*	Not specific	Chat-Chat on heating on flame
2	*Sparsha*	Smooth, Sticky	Smooth, Sticky
3	*Rupa*	Black	Black
4	*Rasa*	*Tikta, Katu*	*Tikta, Katu*
5	*Gandha*	*Gomutra Gandhi*	*Triphala Gandhi*

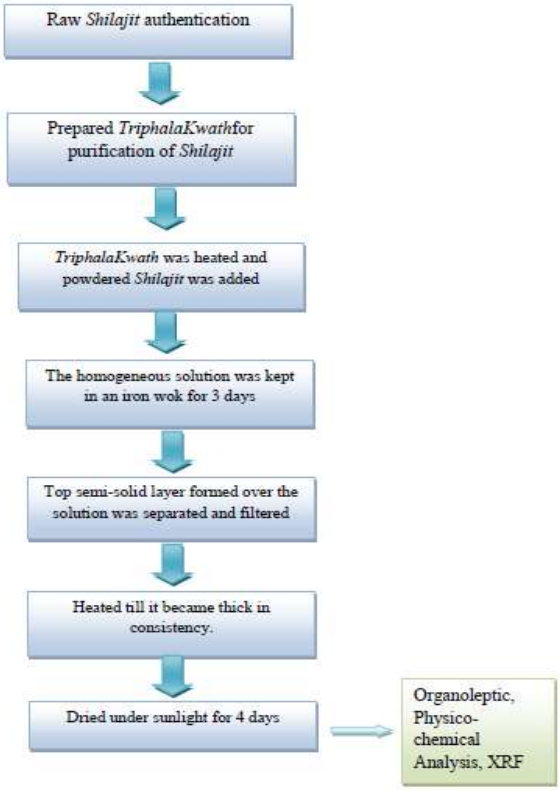
Table no 2.3: Physico-chemical analysis of raw material.

	Before *Shodhan*	After *Shodhan*
Foreign Matter %	Nil	Nil
Total ash %	17.98	18.37
Acid insoluble ash %	5.27	3.46
Alcohol soluble extractive %	15.45	17.03
Water soluble extractive %	64.32	65.01

Table no 2.4: XRF analysis of *Shilajit* - before and after *Shodhan.*

Sr No.	Parameter	Results before *Shodhan*	Results after *Shodhan*
1	K (Potassium)	22.3	13.0
2	Ca (Calcium)	19.5	6.81
3	Fe (Iron)	19.4	48.3
4	Cl (Chlorine)	19.3	14.7
5	S (Sulphur)	10.7	6.95
6	Si (Silicon)	3.92	3.82
7	Al (Aluminium)	3.73	4.61
8	Cu (Copper)	0.45	0.55
9	Zn (Zinc)	0.25	0.35
10	Br (Bromine)	0.24	-
11	Mn (Manganese)	0.22	0.24

1.1. Schematic presentation of *Shilajit Shodhan* process



1.2. Schematic diagram presentation of *Shilajit Shodhan*

DISCUSSION

Opinions on the chemical components of *Shilajit* differ. Because a variety of factors, such as neighboring plant species, the geological environment of the rock and soil, temperature, humidity, height, etc., affect *Shilajit's* composition. The most important basic fact to understand the chemical composition of *Shilajit* is that it contains a variety of organic compounds, the majority of which can be broadly categorized as either humic (80–85% of total organic mass) or non-humic (20–15%). *Shilajit* usually consists of the following: 18–20% nitrogen-free substances; 1.5–2% carbs; 0.05–0.08% alkaloids, amino acids, and other chemicals; 14–20% humidity; 18–20% minerals; 13–17% proteins; 4–4.5% lipids; 3.3–6.5% steroids. Shilajit contains a variety of amino acids, 65 organic compounds, waxes, resins, polyphenols, essential oils, free fatty acids, albumins, coumarins, and organic acids such as adipic, succinic, citric, oxalic, and tartaric.[1],[10] *Shilajit* has significant antioxidant and antihyperlipemic properties.[11] *Shilajit* was proved effective in controlling blood glucose levels and improved the lipid profile.[12] It also has antioxidant action.[13],[14],[15]

Shilajit is considered as the best therapeutic and *Rasayana. Shilajit* has been extensively used in the preparations of several medicines. It is mainly used in the treatment of *Jwara* (Fever), *Rajayakshma* (Tuberculosis), *Kshaya, Prameha* (Diabetes), *Gulma, Pleeha, Ashmari* (Kidney stone), *Muthrakrichra* (Urolithiasis), *Shwasa* (Dyspnoea), *Pandu* (Anaemia), *Apasmara* (Epilepsy), *Unmada* (Insanity)etc. *Shilajit Shodhana* was carried out using *Triphala Kwath* as per the reference of *Rasa Ratna Samucchaya* - 2/ 110-111. *Agnitaapi* and *Suryatapi* both methods were adopted. *Triphala* in itself is considered as a *Rasayana* and works wonderfully on *Tridosha* and maintains their balance which might be the probable reason for using it for *Shodhana* since it augments the *Rasayana* effect of *Shilajit.* The heating was continued till the liquid attained syrup consistency. Later the vessel was placed under sunlight. The blackish creamy layer which appeared on the surface was gently removed and kept it for shadow drying. The process took 8 days to finish and obtain *Shodhita Shilajit* and the final product was pitch black in colour. The shodhan carried out, gave the yield of 497gms of *Shudha Shilajit* from 500gms of *Ashudha Shilajit*. It denotes the loss of 0.6%. The obtained *Shilajit* was smooth and sticky in nature and black in colour. It was *Tikta* (bitter taste) and *Katu* (hot taste) in taste and smelled like *Triphala*. Putting on fire it produced *Chat-chat* sound. Physico-chemical analysis of *Shudha Shilajit* shown foreign matter % - nil, total ash - 18.37 %, acid insoluble ash - 3.46%, alcohol soluble extractive - 17.03%, water soluble extractive - 65.01%.

CONCLUSION

The Shodhan of Shilajit was done by the reference of *Rasaratnasamuchaya*. The *Triphala Kwath Shodhit Shilajit* was dried using water bath method initially and dried under the sun later. 99.4% of *Shudha Shilajit* was obtained. XRF analysis shown the composition of K, Ca, Fe, Cl, S, Si, Al, Cu, Zn and Mn in *Shodhit Shilajit*. The favorable season to perform the *Shilajit Shodhan* is summer.

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Conflict of Interest: None declared.

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