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Pharmaceutical study of *Shilajatu* processed in different media

Research article

Richa Pathak[1*], Singh RS[2], Neeraj Kumar[1]

1. Department of Rasa Shastra, Faculty of Ayurveda IMS, BHU, Varanasi.
2. Department of Chemical Engineering and Technology,
Indian Institute of technology (BHU), Varanasi

Abstract

Shilajatu is considered one of the wonderful medicines of *Ayurveda*. Neither a plant nor animal substance, it is a mineral pitch that oozes from the rocks of Himalayas, as they become warm in the summer month. *Shilajatu* is a blackish brown exudation of variable consistency found in the serene surroundings of Himalayas. It is composed of humus and organic plant material that has been compressed by layers of rock mixed with microbial metabolites. Crude *shilajatu* was collected from Prem nagar Ashram, Haridwar and pure *shilajatu* was extracted from it by two methods i.e. water and *gomutra*. Water extracted *shilajatu* was subjected to *shodhan* by *triphala kwatha* and *guduchi kwatha* then it is used for experimental study. *Gomutra* extracted *shilajatu* was used in experimental study without any processing. Yield of *Shiajatu* using *Gomutra* was 38.5% and *shilajatu* using water was 37.7% *shilajatu*. After *shodhan* with *triphala kwatha* gain in weight of *shilajatu* was 51% and in *guduchi kwatha* weight was increased by 38%.

Key words: *Shilajatu, Gomutra, guduchi kwatha, triphala kwatha*

Introduction

Shilajatu is considered one of the wonder medicines of *Ayurveda*. Neither a plant nor animal substance, it is a mineral pitch that oozes from the rocks of the Himalayas, as they become warm in the summer months. It is said to carry the healing power of these great mountains [1]. *Shilajatu* is an important drug of the ancient Hindu material medica and is to this day used extensively by the physicians for a variety of diseases. *Shilajatu* is a blackish brown exudation found in the serene surroundings of Himalayas. It is also found in most of the sedimentary rocks especially in Afghanistan, Bhutan, China, Nepal, Pakistan, USSR, Tibet as well in Norway, where they are gathered from steep rock faces at attitudes between 1000 and 5000 m. *Shilajatu* is composed of humus and organic plant material that has been compressed by layers of rock mixed with microbial metabolite. Traditional uses primarily focus on diabetes and diseases of the urinary tract, but also include edema, tumors, wasting, epilepsy and even insanity [2]. Modern indications extend to all system oh the human body with a significant number of additions in the reproductive and nervous system. *Shilajatu* cannot be used as such: they need proper processing to develop medicinal qualities. Pharmaceutical study includes mainly identification, collection of crude drugs & its various pharmaceutical processing like *shodhan*,

*Corresponding Author:
Richa Pathak,
Department of *Rasa Shastra*,
Faculty of Ayurveda,
IMS, BHU,
Varanasi.
E,mail -docricha@yahoo.com

bhavana etc. for enhancing the therapeutic effect of a prepared drug.

In this era of globalization it is the need of time to explore the scientific basis of medicaments of *Ayurveda*. To provide the scientific data about the preparation of the medicaments with having this goal in mind, this work was carried out to trace each & every aspect of four preparations made out of crude *Shilajatu*, extraction of *Shilajatu* by water as well as *gomutra*, then water extracted *Shilajatu* was subjected to *shodhan* with *triphala* [3] and *guduchi kwatha* [4].

Pharmaceutical study

Pharmaceutical study includes mainly collection of crude drugs & pharmaceutical processing like *shodhan etc*, by this blemish are separated from the substances by various processing with specific drugs. *Shodhan* is a process of purification & detoxification by which physical, chemical blemishes & toxic materials are eliminated and substances are subjected for further processing.

Procurement and identification Drugs

Crude *Shilajatu* samples were procured from Hansa Ayurvedic Pharmacy Premnagar Ashram, Haridwar (Uttrakhand). It was identified by experts of Department of Rasa Shastra, Faculty of Ayurveda, IMS, Banaras Hindu University. Crude *Shilajatu* was blackish brown in colour, intense odour of cow urine and sticky in nature.

Process of Extraction

Extraction of *Shilajatu* was done by two method i.e. Water extraction and *Gomutra* extraction.

Water extraction [5]

2.0 kg crude *Shilajatu* was dissolved in four times i.e. eight litres of hot tap water and kept in steel vessel-1, it was mixed by stirring and kept for 24 hr. for settling down of water insoluble material, after 24 hrs the mixture had supernatant liquid covered with thin layer and muddy sediment. The supernatant liquid was filtered with the help of cotton cloth into another steel vessel -2. Again 2 litres of hot water was added to vessel -1 and both the vessels were kept for 24 hrs, next day contents of vessel -2 was decanted into third steel vessel-3 and of vessel -1 into vessel -2 . All the above processes were repeated until the formation of thin layer on the surface of liquid in final steel vessel disappeared and clean solution formed.

***Gomutra* Extraction [6]**

1.0 kg crude *Shilajatu* was made it to small pieces mixed with 2 litres of *gomutra* & kept undisturbed for 24 hrs. After 24 hours supernatant *gomutra* covered with thin layer and muddy sediment. The supernatant *gomutra* was filtered with the help of cotton cloth & sedimented residual matter was again mixed with *gomutr*a & kept undisturbed. This process was continued till whole of the *gomutra* become clear of all the impurities. This solution was now kept in hot air oven at 70^0C up to dryness. Dried sample were stored in a steel jar for further study.

Shodhan* of *Shilajatu

Processing of water extracted *Shilajatu* was done by two methods. In first method *Shilajatu* was levigated with *triphala kwatha* for seven times. For each time of levigation *triphala kwatha* was prepared by 100 gm of *triphala* powder with 800 ml of water reducing to 100 ml. In second method *Shilajatu* was levigated with *gudhuchi kwatha* [7] for seven times. For each time of levigation *guduchi kwatha* was prepared by 100 gm of *guduchi* with 800 ml of water reducing to 100 ml. Details are summarised in table-2.

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Table 1: Showing observation of extraction using water and *gomutra*

S.N.	Media used	P^H of media	Appearance of solution	Smell of extracted *Shilajatu*	Colour of extracted *Shilajatu*	% yield
1	Water	7	Not easily miscible with hot water Colour of solution: reddish brown colour	intense cow urine odour	Blackish brown	37.7
2	*Gomutra*	8	Thin layer of foam formed over the *gomutra.* Colour of solution: dark brown.	Pungent smell of *gomutra.*	Bright brown	38.5

Table 2: Showing observation of *shodhan* of *Shilajatu* with triphala *kwatha* and *guduchi kwatha* as a media.

S.N	Quantity of purified *Shilajatu* (gm)	Media used	Consumed amount of media (ml)	Duration (days)	Quantity of processed *Shilajatu* (gm)	Percentage gain/loss
1	100	*Triphala kwatha*	700	20	151	51 gain
2	100	*Guduchi kwatha*	700	14	138	38 gain

Result

37.7% & 38.5% yield of *Shilajatu* was procured by water and *gomutra* extraction technique respectively. Weight of *Shilajatu* was increased 51% & 38% by *shodhan* with *triphala kwatha* and *guduchi kwatha.*

Discussion

Crude *Shilajatu* is generally not easily available in local market it has to be procured from high altitude rocks or can be obtained from Pharmaceutical industries. Due to this various type of unwanted materials was present in *Shilajatu.* Keeping this fact in mind- extraction of *Shilajatu* was done using water and *gomutra* as a media. *Gomutra* methods of *Shilajatu* extraction have more percentage yield than water method of *Shilajatu* extraction . *Cow* urine contains nitrogen, magnesium, silicon, iron, sodium and calcium etc. due to presence of these element percentage yields of *Shilajatu* with *gomutra* may be slightly higher than water extracted[8]. Drugs of both mineral and metal origin should be subjected to *shodhan* process before they are to be used as such internally or in the preparation of any other compound form of drugs. Researches has shown that natural form of *Shilajatu* is often contaminated by varying amounts of impurities such as mycotoxins, heavy metal ions, polymeric quinones, reactive free radicals, etc. Mycotoxins are produced by mold or fungi and can cause illness or death in man. Free radicals can be harmful to cells and are believed to be a causative factor in aging. Polymeric quinones are an oxidation product of quinic acid which is found in some plants. Hence, it is necessary to purify the *Shilajatu* before it is consumed [9]. *Shodhan* of *Shilajatu* with *triphala kwatha* by levigation method gives more yield than *guduchi kwatha* shodhit. It was

observed that *triphala kwatha* has more percentage of solid content than *guduchi kwatha*. So % gain is observed more in *triphala kwatha shodhit Shilajatu* as compared to *guduchi kwatha shodhit Shilajatu*.

Conclusion

Shilajatu extracted by *gomutra* provides more percentage yield than *Shilajatu* extracted using water as a media. Further when water extracted *Shilajatu* was subjected to *shodhan* by *triphala kwatha* and *guduchi kwatha* then we found that weight of *shodhit Shilajatu* using *triphala kwatha* as a media was more as compared to *guduchi kwatha*.

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