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EXTRACTION OF PURE SHILAJIT: AN AYURVEDIC CONCEPT

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ABSTRACT

Ayurveda, the science of life, is a comprehensive medical system that has been the traditional system of healthcare in India for more than 5000 years. Ayurvedic pharmaceutics have full variety of dosage forms which fully covers pediatric to geriatric problems. Rasa Shastra is the main branch of Ayurvedic science which creating high potency drugs from metals/minerals needing only low doses With the advent of various specialized pharmaceutical techniques in the medieval period, the use of metals and minerals became frequent in therapeutics. Shilajit is one of the major mineral described in ancient classics of Ayurveda. After purification it can cure even the asadhya diseases and disorders. The main aim of this study is to extract the pure Shilajit from raw for therapeutic uses. The purification process was done with the help of hot water and yield obtained was 37%.

KEYWORDS: Ayurveda, Shilajit, Purification, Yield.

INTRODUCTION

Ayurveda is a well documented Traditional System of Medicine. Rasashastra, an offshoot of Ayurveda popular from medieval period, mostly deals with therapeutic utilization of metals and minerals. Shilajit is one of the important mineral it comes under Maharasa group.[1] Shilajit is an exudation from rock during hot sunny days. Though it may be occurring in many parts of the world but India was the first to highlight its tremendous therapeutic value for many centuries BC.[2,3] Ayurveda mentioned it as wonderful medicine. It describes that Purified Shilajit after bhavana (trituration) can cure even the asadhya diseases and disorders. Nearly all the ancient and medieval texts, which constitute the frame of Ayurveda strongly, upheld the curative action and therapeutic properties of the drug. The Shilajit has been in extensive use in the preparations of a number of medicines and their utility has been most dependable because of this very constituents. Charaka says “there are hardly any curable diseases which cannot be controlled or cured with the aid of Shilajit”.[4]

Shilajit is exudates of rocks which is agglomerated with a lot of impurities e.g. gravels, sand particles, plant debris, polymeric and toxic materials etc. Therefore it should be use after purification process. After purification of Shilajit, according to different text it should be use after bhavana of various herbal drug decoction indicated in disease as Shilajit having Yogavahi property. The main aim of this study is to extract pure Shilajit from crude Shilajit rock through purification with water.[5] The methods used were Vilayan and Prithakkaran and solvent media was hot water ,as water is known as best solvent and at high temperature solubility of Shilajit increases as Shilajit is soluble in water. For this study crude Shilajit were procured from Premnagar Ashram Ayurvedic Pharmacy, Haridwar Uttarakhand. The crude Shilajit was Identified in Department of Rasa Shastra, Faculty of Ayurveda, IMS, Banaras Hindu University, Varanasi UP. Shape of the collected sample consist of big pieces having irregular shape containing small stones, gravels, clay agglomerated with resinous exudates of Shilajit. The colour of crude Shilajit was blackish brown & clay color distributed homogeneously. The blackish brown portion had resinous lustre. It have intense odour as cow urine. The consistency was hard, not easily breakable; sticky in nature may be due to resinous exudates of Shilajit (Fig. 1.1).

Purification of crude Shilajit

The principles adopted for the process are hammering, dissolution, filtration and separation. Identified crude Shilajit was taken in quantity of 1 kg and turned it to small pieces up to gravel size by hammering with the help of pestle & mortar. Then four times (4 lt.) of tap water were taken in steel vessel (V_1) and heated up to 70^0C. The crushed Shilajit was poured in to hot water and stirred until proper mixing, thereafter the mixture of Shilajit and water were kept for 24 hr. for settling down of water insoluble material. After 24 hr. 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 (V_2), and then 2 lit. of tap water was taken in another steel vessel and heated up to 70^0C. The warm water was poured with residue left in first steel vessel and mixed properly. After that both vessel V_1 &V_2 were kept for 24 hr. Next day the supernatant liquid of vessel V_2 was decanted into third steel vessel V_3 and of vessel V_1 into V_2. Again 2 ltr. of tap water was taken in another steel vessel and heated up to 70^0C. The warm water again mixed with residue of vessel V_1.

All three vessels V_1, V_2 & V_3 were kept again for 24 hr, after 24 hr the liquid of vessel V_3 was decanted into 4^{th} vessel V_4. Again liquid of rest of the entire vessel V_1, V_2 were successively decanted. Again 2 lt. of tap water was taken in another steel vessel and heated up to 70^0C and

mixed with residue of vessel V_1. All the above processes were repeated until the formation of thin layer on the surface of liquid in vessel V_4 became disappeared and clean solution formed in vessel V_4 without sediments. After that the solution of vessel V_4 were kept in hot air oven at 70^0C up to dryness. Dried Shilajit was stored in steel jar.

During purification process observation was that the crude Shilajit was not easily miscible with hot water. After mixing with hot water the mixture gave reddish brown colour and intense odour like cow urine. The small stony matters, gravels, sand and clay were settle down in vessel and gave muddy consistency. After keeping all the vessels the liquid were consist of superficial thin layer. After decanting the liquid in vessel V_4 is clean having superficial layer and without any sediments. During drying liquid gave intense cow urine odour and layer on the liquid surface became more and more thick. After complete drying the liquid turned into blackish brown solid having intense cow urine odour (Fig. 1.2).

Table- 1.1: Results

Crude Shilajit (K.g.)	1
Water consumed during procedure (lit.)	10
Duration (days)	15
Amount of extracted purified Shilajit (gm)	370

Table- 1.2: Qualitative analysis of pure Shilajit as per Ayurveda

Parameters	**Appearnce**	**Pure Shilajit**
Varna	Krishna	✓
Lustre	Gugguluabha	✓
Odour	Gomutragandhi	✓
Consistency	Mridu	✓
Dissolving in water	Dissolve with give a stream	✓
Reaction on fire	Burn without fumes and give lingakar akriti	✓

Fig. 1.1: Raw Shilajit

Fig. 1.2: Pure Shilajit

There is a lot of hue and cry about the operating procedures for preparation of Ayurvedic formulations. Some people are of the opinion that Ayurvedic classics describe different procedures for the same formulations and no standard operating procedure (SOP) is described in Ayurvedic texts. This is absolutely false. There is no difference of opinion with reference to preparation of formulations. The identifying properties of Shilajit have been given more emphasis by Ayurvedic literature. The identification of Shilajit based upon organoleptic properties e.g. color (Krishna), odour (Gomutragandhi), taste, consistency etc. [6] Ayurvedic literatures also refer that summer season is appropriate time for collection of Shilajit, indicate that shilajit become melt as temperature increases. Shilajit procured in crude form agglomerated with a lot of impurities and administration of Shilajit without purification it leads to hazardous effects.[7] Therefore it becomes more important to purify Shilajit before administration. The pharmaceutical processing of Shilajit is not only for for purification prospectus to eliminate internal and external impurities but development of enhanced drug delivery in the body. Shilajit has become unique properties to make it precious drug in Ayurveda and modern sciences too e.g. Yogavahi and Chedana properties.[8] Shilajit is composed of three primary chemical units namely, (1) low and medium molecular weight non-humic organic compounds comprising free and conjugated (e.g. fattyacyl, aminoacyl, lipoidal), dibenzo-_-pyrones. (2) Medium and high molecular weight DCPs (dibenzo-_-pyrones-chromoproteins), containing trace metal ions and colouring matter such as carotenoids and indigoids and (3) metallo-humates like fulvic acids and fusims with dibenzo-pyrones in their core nuclei.[9]

The crude well grinded Shilajit were dissolved in hot water because of more solubility at higher temperature. During dissolution Shilajit has given intense Gomutragandha (Cow urine) and

mixture of water and crude Shilajit material was somewhat smooth in touch. The mixture was reddish in color and gave dark stain which was not easily washed out. After stirring the mixture it was put for twenty four hours for proper sedimentation. Next day a thin layer was appeared on the surface of solution. This phenomena may be due to molten Shilajit in hot water get solidified on the surface of water after cooling as on the surface floating particles have minimum energy. After decanting the superficial layer the hot water was again added to mixture having sediments these procedures were repeated until the superficial layer was disappeared. The whole procedure consumed very much quantity of water this leads to repeated extraction of Shilajit. Purification procedure of Shilajit consumes ten litres of water and yield was 37% of pure Shilajit. In this study we first time reported that easiest and safest purification process of Shilajit with maximum yield.

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