

SHILAJIT

A MATERIA MEDICA MONOGRAPH

by

Robert Talbert

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1117A East Main Street

Grass Valley, California

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OVERVIEW

Shilajit 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 (Frawley 2001). Shilajit is an important drug of the ancient Hindu material medica and is to this day used extensively by the Hindu physicians for a variety of diseases. Early ayurvedic writings from the Caraka Samhita and Susruta Samhita describe shilajit as a cure for all disease as well as a rasayana (rejuvenative) able to increasing longevity from 100 to 1000 years of age. It is composed of humus and organic plant material that has been compressed by layers of rock mixed with microbial metabolites. Traditional uses primarily focus on diabetes and diseases of the urinary tract, but also include edema, tumors, wasting, epilepsy and even insanity. Modern indications extend to all system of the human body with a significant number of additions in the reproductive and nervous system. The Ayurvedic energetics vary depending on the base rock that the shilajit comes from but it is generally thought to be tridoshic and only aggravating to Pitta (Fire) when used in excess. Clinical research confirms many of the properties that shilajit is used for. However, further investigations are required before many of shilajit's actions can be affirmed. No studies with human subject have been conducted. Some of the most interesting studies confirm shilajit's uses as an anxiolytic (anti-anxiety) agent and its nootropic (enhancer of learning acquisition and memory retrieval) activity. Shilajit is generally considered safe in moderate doses and is readily available in the United States both as a stand-alone product and in the traditional Ayurvedic formula Chandraprabha. It has also compounded in many patent medicines from India. Those who sell shilajit or products containing it make many wild claims for shilajit's ability to cure diseases. Hopefully shilajit will not become a "snake-oil" in our modern world only to be cast aside by modern researchers. Shilajit is truly a remarkable substance with a long history of human usage for healing and should be subjected to further investigations.

DESCRIPTION

Names:

Sanskrit:	Shilajit, Silajit, Silaras	(Chopra 1958)
Hindi, Gujarati and Marathi:	Silajita	(Chopra 1958)
Hindi:	Ral-yahudi	(Nadkarni 1954)
Bengali:	Silajatu	(Chopra 1958)
Tamil:	Uerangyum	(Chopra 1958)
Tamil:	Perangyum, Uerangyum	(Nadkarni 1954)
Arabic:	Hajar-ul-musa	(Chopra 1958)
Persian:	Momiaf Faqurual Yahud	(Nadkarni 1954)
Russian:	Mummio, Mumie	(Bucci 2000)
English:	Asphalt, Mineral Pitch	(Chopra 1958)
English:	Jew's pitch	(Nadkarni 1954)
English:	Vegetable Asphalt	(Tirtha 1998)
Latin:	Asphaltum	(Tirtha 1998)
Botanical description:	Bitumen mineral	(Puri 2003)

Synonyms: śilājatu, uśnaja, śailaniryasa, giriśahvaya, śilahva, girija, śaila, śaileya, girijatu (Dash 1991).

Meaning:

In Sanskrit, shilajit means 'winner of rock' (Mukherjee 1992). Another meaning is "sweat of the rock" (Tirtha 1998).

Source:

The Charaka Samhita states that, "Stones of metal like gold etc., in the mountains get heated up by the sun and the exudates that comes out of them in the form of smooth and clean gum is called śilājatu". Sharma adds that metals like gold do not produce exudates and what was actually intended was that stones containing gold would produce shilajit (Sharma 2000).

The Sushruta Samhita states that "A gelatinous substance that is secreted from the side of the mountains when they have become heated by the rays of the sun in the months of Jyaishta and Ashadha. This substance is what is known as Śilājatu and it cures all distempers of the body." (Bhishagratna 1998). Jyaishta is May-June and Ashadha is June-July. It is found in abundance in the lower Himalayan hills near Hardwar, Simla and also in Nepal. (Chopra 1958)

Shilajit is a blackish-brown exudation, of variable consistency, obtained from steep rocks of different formations found in the Himalayas at altitudes between 1000 to 5000 meter, from Arunachal Pradesh in the

East to Kashmir in the West. It is also found in Afghanistan, Nepal, Bhutan, Pakistan, China, Tibet and U.S.S.R (Tien-Shan, Ural and Caucasus) (Jaiswal 1992).

Types of Shilajit:

The Charaka Samhita states that there are four types based on stones of four types of metals from which it exudes: gold, silver, copper and black iron. The shilajit from the last type is the best. If administered according to proper procedure, it produces rejuvenating and aphrodisiac effects and cures diseases (Sharma 2000).

The Sushruta Samhita states that there are six types based on their origins (shad-yoni). In addition to the four types listed above he added tin and lead. Each type has the same taste (rasa) and potency (virya) as the metal to whose essence it owes its origin. He goes on to note that tin, lead, and iron, copper, silver, gold are progressively more efficacious, so the different types of shilajit that derive from these metals are also progressively more efficacious in their application (Bhishagratna 1998).

The Astanga Hrdayam also notes the six types but notes that the shilajit coming out of iron is the best (Murthy 2001).

The description of six types in Sushruta relates to both the rejuvenation therapy and treatment of diseases. Caraka describes only the rejuvenating effects of shilajit, and this effect is available in the four types that he lists. (Sharma 2000).

Chopra (1958) states there are four types each with its own unique color; gold (red), silver (white), copper(blue), iron(blackish brown).

There are several varieties of the substance, of which the black color has the main therapeutic properties (Frawley 2001).

The black form of shilajit is the most commonly used medicinal form (Halpern 2003).

FOLKLORE

Some Himalayan tribal villagers, who were observing white monkeys migrating to the higher mountains in summer months, made the discovery of shilajit. The monkeys were observed to lick the semi-solid substance exuding out the rock crevices. Since observing the animal behaviors were an important part of healthcare research in ancient times, those villagers attributed the great strength, longevity and wisdom of those monkeys to this substance. Curious by the thought, they themselves started taking the substance and reported a broad spectrum of improvement in their health and stamina. It gave them more energy,

relieve digestive problems, increase sex drive, improve to memory etc., with the passage of the time traditional health practitioners established the methods to purify the substance (Dabur 2003).

TRADITIONAL USES

Shilajit is an important drug of the ancient Hindu material medica and was used extensively by the Hindu physicians in a variety of diseases. This section sites uses as described in the Caraka Samhita, Susruta Samhita and Astanga Hrkayam.

Panacea:

The Caraka Samhita discusses shilajit in a chapter on rejuvenation therapy (rasayana). It has been proposed that the modern equivalent of a rasayana is an adaptogenic substance. (Ghosal 1998).

The Caraka Samhita states that there is no curable disease in the universe, which is not effectively cured by shilajit when it is administered at the appropriate time, in combination with suitable drugs and by adopting the prescribed method. When administered to a healthy person, with similar conditions it produces immense energy. In the Sushruta Samhita, it is noted that there is no bodily distemper, which does not yield to shilajit's highly curative virtues. When gradually taken, (in adequate doses) it tends to improve the strength and complexion of the body. (Bhishagratna 1998). The is echoed in the Astanga Hridayam which also states that it is the best rejuvenator (Murthy 2001).

Longevity:

The Caraka states that it enables the user to witness a hundred summers on earth, free from disease and decay. Each tulā weight (7.75 lbs. or 3.5 kilos) of shilajit taken successively, adds a century to the duration of the human life, while ten tulā weight (77.5 lbs. or 35 kilos) measures extend it to a thousand years (Sharma 2000). Enables the user to witness a hundred summers on earth, free from disease and decay. Additional quantities are said to extend lifetime in increments of a century up to one thousand years. (Bhishagratna 1998).

Traditional Indications:

Cardiovascular

none

Dermatological

Kushtha (obstinate skin diseases including leprosy) (Bhishagratna 1998) (Murthy 2001)

Endocrinology, reproductive system, obstetrics/ gynecology, prostate

none

Gastrointestinal

Ama (disorders of poor digestive activities) (Murthy 2001)

Enlargement of the abdomen (Murthy 2001).

Hemorrhoids(Bhishagratna 1998).

Rectal distula (Murthy 2001)

Worms (Murthy 2001)

Hematology, lymphatic, cancer

- Jaundice (Bhishagratna 1998).
- Śopha (edema) (Bhishagratna 1998).
- Elephantiasis(Bhishagratna 1998).
- Poison begotten distempers(Bhishagratna 1998).
- Fever(Murthy 2001).
- Chronic fever(Bhishagratna 1998).

Immunology, aids, infectious diseases

- Phthisis (wasting of the body) (Bhishagratna 1998).
- Gulma (internal tumors) (Bhishagratna 1998).
- Malignant tumor (Murthy 2001)
- Benign tumor (Murthy 2001)

Liver and gallbladder

- none

Neurology, psychiatry

- Loss of consciousness (Murthy 2001)
- Epilepsy (apasmára) (Bhishagratna 1998).
- Insanity (Bhishagratna 1998).

Respiratory (lower and upper respiratory tract including ears, nose, throat, sinuses)

- Cough (Murthy 2001)
- Scrofula (tuberculous cervical lymphadenitis) (Murthy 2001).

Rheumatological, orthopedic, muscles, contusions

- Obesity (Murthy 2001).

Urinary tract system (kidney, ureter, bladder)

- Dysuria (Murthy 2001).
- Madhu-Meha (vata type diabetes mellitus -type I) (Bhishagratna 1998) (Murthy 2001)
- Gravel or stones in the bladder (Bhishagratna 1998).

MODERN USES

What follows is a list of suggested usage from reputable sources. I purposefully chose not to include any claims made by anyone who was selling shilajit, as these sources tend to inflate its usefulness.

Modern Indications:**Cardiovascular**

- Pāñḍutā (anemia) (Dash 1991).
- Rakta (vitiation of blood) (Dash 1991).
- Reduces blood sugar (Tierra 1988).

Dermatological

- Parasitic diseases of the skin (Chopra 1958).
- Skin diseases (Frawley 2001).

Leprosy (Chopra 1958).

Endocrinology, reproductive system, obstetrics/ gynecology, prostate

Sexual debility (Frawley 1989) (Frawley 2001).

Sexual vitality (Puri 2003).

Infertility (Tierra 1988).

Menstrual disorders(Frawley 2001).

Post partum health (Puri 2003).

Thyroid disfunction (Lad 2002).

Gastrointestinal

Digestive troubles (Chopra 1958).

Chardi (vomiting) (Dash 1991).

Arśas (piles or hemorrhoids) (Dash 1991) (Frawley 2001).

Krimi (parasitic infestation) (Dash 1991) (Frawley 2001).

Hematology, lymphatic, cancer

Edema (dropsy) (Chopra 1958) (Frawley 1989) (Frawley 2001).

Spleen enlargement (Halpern 2003).

Cancer (Frawley 1989).

Immunology, aids, infectious diseases

Weakness (Frawley 2001).

Debility (Frawley 2001).

Kṣaya (consumption) (Dash 1991) (Tierra 1988).

Immunomodulator (Puri 2003).

AIDS (Frawley 1989).

Liver and gallbladder

Jaundice (Frawley 2001).

Gall stones (Frawley 2001).

Udara (obstinate abdominal diseases including ascites) (Dash 1991).

Neurology, psychiatry

Nervous diseases (Chopra 1958).

Antistress (Frawley 1989)(Puri 2003).

Epilepsy (Frawley 2001).

Unmade (insanity) (Dash 1991) (Frawley 2001).

Respiratory (lower and upper respiratory tract including ears, nose, throat, sinuses)

Śvāsa (dyspnoea) (Dash 1991).

Chronic bronchitis (Chopra 1958).

Asthma (Chopra 1958) (Frawley 2001).

Mouth diseases (Dash 1991).

Rheumatological, orthopedic, muscles, contusions

Obesity (Frawley 1989)(Frawley 2001).

Fractures (Chopra 1958) (Tierra 1988) (Puri 2003).

Arthritis (Halpern 2003-2)

Osteoarthritis (Tierra 1988).

Spondylosis (Tierra 1988).

Bodybuilding (Muscular hypertrophy) (Bucci 2000)

Urinary tract system (kidney, ureter, bladder)

Pameha (obstinate urinary disorders including diabetes) (Dash 1991) (Frawley 1989).

Seeta meha (renal glycosuria, a type of Kapha diabetes) (Qutab 1996)

Sikata meha (Lithuria, a type of Kapha diabetes) (Qutab 1996)

Shanai meha (Frequent urination caused by a stone in prostate area) (Qutab 1996)

Shukara meha (spermorua) (Qutab 1996)

Diabetes (Frawley 1989)(Frawley 2001).

Kidney stones (renal calculi) (Chopra 1958) (Frawley 2001).

Cystitis (Frawley 2001).

Dysuria (Frawley 1989)(Frawley 2001).

Chronic urinary tract problems (Tierra 1988).

Urinary tract infections (Frawley 1989).

Urinary Tonic (Halpern 2003).

Kidney Tonic (Frawley 1989)(Frawley 2001).

Other Uses:

Yogavāhi, which means that it enhances the properties of other herbs (Dash 1991). It acts as a catalytic agent for promoting the action of the other tonic agents. (Frawley 2001).

Geriatric tonic (Frawley 1989) (Puri 2003).

Tonic (Vata and Kapha) (Frawley 2001).

Rejuvenative (Frawley 2001).

AYURVEDIC ENERGENICS

The Caraka Samhita gives the ayurvedic energenics for each type of shilajit as summarized below:

Shilajit Type (derived from stone containing)	Color	Rasa	Virya†	Vipāka
Gold	like the flower of japā (hibiscus)	bitter	cooling	pungent
Silver	white	pungent	cooling	sweet†
Copper	peacock throat	bitter	hot	pungent
Iron	looks like gum of guggulu	bitter, salt	cooling	pungent

† Sharma clarifies that the virya of shilajit is a point of confusion in the text. In verse 48 it states it is “Neither hot nor very cold” and here the virya seems of mixed virya based on its type. His conclusion is that the virya of shilajit is not very powerful and should be considered neither hot or cold (Sharma 2000).

‡ Sharma clarifies that according to the general rule, a substance having a pungent taste should have a pungent vipaka. But for the Silver type of shilajit is an exception to the rule (Sharma 2000).

Rasa:

Astringent (Sharma 2000)
Bitter and pungent (Bhishagratna 1998)
Astringent, pungent, bitter (Frawley 2001)
Astringent, pungent, bitter, salty (Halpern 2003)

Anu-rasa (after taste):

Astringent (Bhishagratna 1998)

Virya:

Neither hot nor very cold (Sharma 2000)
Heating (Bhishagratna 1998)
Warm (Frawley 2001) (Halpern 2003)
Hot (Dash 1991)

Vipaka (post digestive effect):

Pungent (Sharma 2000)
Pungent (Bhishagratna 1998)
Pungent (Frawley 2001) (Halpern 2003)
Pungent (Dash 1991)

Dosha effect:

V-P+K- (Frawley 2001)
V-P-K-, P + in excess (Tirtha 1998)
V-P+e,K- (Halpern 2003)

Tissues and Systems:

Shilajit effects the nerve and reproductive tissues and the urinary, nervous and reproductive systems (Frawley 2001). It also has specific action on the endocrine system and affects all tissue systems (dhatus). It also strengthens agni (digestive fire) and reduces ama (toxins) (Halpern 2003).

Actions:

Herbal actions are alterative, diuretic, lithotropic, antiseptic, tonic, rejuvenative (Frawley 2001). Other actions include anodyne, anthelmintic and blood sugar reducer. (Halpern 2003, 2003-2). It also has a laxative effect and has absorbing and purifying (chhedana) properties (Bhishagratna 1998).

CHEMISTRY

The general appearance of shilajit is that of a compact mass of vegetable organic matter composed of a dark-red gummy matrix interspersed with vegetable fibers, sand and earthy matter. The gummy substance dissolves in water and when washed away leaves an earthy matter, vegetable fibers and a few black round button-like masses (1/8 in. in diameter) resembling peas (Chopra 1958).

Chemical analysis shows that it contains besides gums, albuminoids, traces of resin and fatty acid, a large quantity of benzoic and hippuric acids and their salts. From the medicinal point of view, the chief active substances in it are benzoic acid and benzoates (Chopra 1958).

A study of vegetation of the areas of shilajit-exuding rocks indicated that *Euphorbia royleana* Boiss. (family Euphorbiaceae), a latex-bearing plant abundantly growing in the Western Himalayas, is the source of organic constituents of shilajit. The major amino acid composition in the latex of *E. royleana* was similar to that of shilajit (Ghosal 1976). *E. royleana*, a member of the cactus family, is commonly known as churee.

Trifolium repens L. (family Leguminosae) has also been found growing abundantly in the vicinity of shilajit-bearing rocks and are responsible, at least in part, for the formation of shilajit (Ghosal 1987). *Trifolium repens* is commonly known as white clover.

Shilajit is naturally high in iron and other valuable minerals (Tierra 1988).

Shilajit has long been regarded as a bitumen (asphalt) or mineral resin, or as a plant fossil exposed by elevation of the Himalayas, has now been subjected to extensive chemical investigations and it has now been shown to contain significant quantities of organic compounds, including bioactive oxygenated dibenzo- α -pyrones, tirucallane triterpenes, phenolic lipids and small tannoids. Shilajit, obtained from different sources, has now been standardized on the basis of its major organic constituents (Ghosal 1991).

Shilajit is essentially constituted of fresh and modified remnants of humus (10-70% of the water-soluble fraction of shilajit), admixed with plant and microbial metabolites occurring in the rock rhizosphere of its natural habitat (Mukherjee 1992).



Euphorbia royleana



Trifolium repens

CLINICAL REVIEW

The following summary of current research on shilajit show that some claims are substantiated and others are not. Note that all studies used animal subjects.

Research supports

- **Analgesic activity:** Aqueous suspension of an authentic sample of shilajit was found to have significant analgesic activity in albino rats. Observed analgesic activity of shilajit probably justifies its use in different painful conditions. (Acharya 1988).
- **Anti-Alzheimer:** Shilajit holds a potential in the treatment of the apparently untreatable and incurable Alzheimer's disease (Mukherjee 1992).
- **Anti-inflammatory activity:** Aqueous suspension of an authentic sample of shilajit was found to have significant anti-inflammatory activity in albino rats. This research supports the use of shilajit in Ayurvedic medicine for rheumatism. (Acharya 1988). Shilajit was found to have significant anti-inflammatory effect in carrageenan-induced acute pedal oedema, granuloma pouch and adjuvant-induced arthritis in rats. These results substantiate the use of shilajit in inflammation (Goel 1990).
- **Anti-ulcerogenic activity:** Shilajit treatment produced decreased ulcerogenicity in 4 hr pylorus ligated rats. This finding lends credence to the suggested use of shilajit for peptic ulcers. (Acharya 1988). Shilajit increased the carbohydrate/protein ratio and decreased gastric ulcer index, indicating an increased mucus barrier. These results substantiate the use of shilajit in peptic ulcer (Goel 1990). Some active constituents isolated from shilajit are Fulvic acid and 4/-methoxy 6-carbomethoxy bi phenyl. These active constituents were found to have ulcer protective effect as a result a per se decrease in acid-pepsin secretion and cell shedding (Ghosal 1988)
- **Anxiolytic activity: (anti-anxiety activity)** The results indicate that shilajit has significant anxiolytic activity, comparable qualitatively with that induced by diazepam (valium), in doses lower than that required for nootropic activity (Jaiswal 1992). Ayurvedic use of shilajit as a tonic has some support from studies of the humic acids, fulvic acids, coumarins, and triterpenes that have shown anti-stress effects in animals (Ghosal 1988).
- **Morphine-tolerance:** In Swiss mice, the concomitant administration of proceeded shilajit with morphine, from day 6 to day 10, resulted in a significant inhibition of the development of tolerance to morphine induced analgesia (Tiwari 2001).
- **Nootropic activity:** Nootropic is a word coined by Dr. Giurgea to describe a new class of drugs that act as cognitive enhancers with no side effects or toxicity, from Greek words noos, meaning mind and tropein meaning toward (Giurgea 1973). It has been proposed that the modern equivalent of a medha rasayanas are those substances with nootropic activity (Ghosal 1998). Medhya is defined as causing or generating intelligence, mental vigor or power. The research found significant nootropic effects, which are

consistent with shilajit's use as a medha rasayana (enhancer of learning acquisition and memory retrieval) (Mukherjee 1992). Shilajit can be regarded as a nootropic agent in view of its facilitatory effect on retention of acquired learning, though it had minimal effect on the acquisition of active avoidance learning (Jaiswal 1992).

- Nutritive Tonic: The effect of shilajit was investigated on the body weight of young rats for a period of one month. The body weight of the rats was found to be significantly greater in the rats taking shilajit compared with a control group. Researchers suggest a better utilization of food as a cause of the weight gain (Gupta 1966).

Research does not support

- Cardiac depressant action: Findings using frog's hearts, do not support the therapeutic use of shilajit in cardiac failure as claimed in Indian System of Medicine (Acharya 1988).
- Cardiovascular system: no significant action on blood pressure, heart rate and respiration of an anaesthetized dog (Acharya 1988).
- Smooth and Skeletal muscles: Shilajit had neither any *per se* effect nor could modify the responses of nicotine, acetylcholine and histamine on isolated guinea pig ileum. Shilajit neither had any *per se* effect nor it could modify acetylcholine response on isolated rectus abdominis muscle of frog. (Acharya 1988).
- Central Nervous System: Shilajit in the doses of 50 to 200mg/kg had no significant effect on the general behavior of mice. (Acharya 1988).
- Bronchial asthma: Shilajit did not offer any protection against histamine-induced bronchospasm in guinea pigs. (Acharya 1988).

More research needed

- Anti-Alzheimer: Data clearly demonstrate that shilajit affects some events in cortical and basal forebrain cholinergic signal transduction cascade in rat brain. The study suggests that more research is needed where the treatment period is longer than seven days. Drugs that enhance cholinergic activity have been investigated as potential therapeutic agents in the treatment of Alzheimer's disease (Schliebs 1997).

DOSAGE AND ADMINISTRATION

According to the Caraka Samhita, impregnating shilajit with a decoction of drugs, which alleviate vayu, pitta and kapha, increases the shilajit potency. Impregnation can be done by these drugs individually or by all of them taken together. A shilajit rasayana is described where shilajit is immersed into a hot decoction of herbs that are prescribed for alleviating the aggravation of dosha. This process is repeated for seven days and processed shilajit is mixed with powdered iron. Administered with milk this elixir brings long life and

happiness and prevents aging and disease. Administration of 48 gm for seven weeks is said to have excellent effects (Sharma 2000). According to the Astanga Hrdayam the minimum, moderate and maximum doses of shilajit are karṣa, half-pala (17.5 grams) and pala (35 grams) respectively and the duration of use one week, three weeks and seven weeks respectively (Murthy 2001).

Shilajit can be expensive but does not require large dosages (Frawley 2001).

One suggested dosage is to take shilajit powder with milk, 1 oz or more a day for severe diseases; 0.25 – 1 tsp three times per day otherwise (Tirtha 1998).

Shilajit is important for edema, particularly in weak types, 1-2 grams twice a day with water or milk (Frawley 1989).

The dose of shilajit is usually quite low at around 125-250mg twice per day. However, in diabetes, it has been recommended in much higher doses such as 1 g twice per day. Shilajit mixes well with ashwagandha for seminal debility and with gokshura as a urinary tonic (Halpern 2003). For the treatment of both male and female infertility, it can be taken in unusually high doses of 1 tsp twice per day. For men combine with ashwagandha and for women with shatavari. Consider shilajit in all vata and kapha urinary disorders. As a tonic for vata, combine it with Gokshura. Shilajit is among the best herbs for the long-term management of diabetes mellitus where it should be combined with gumar (Halpern 2003-2).

CONTRAINDICATIONS

Should not be used with a heavy diet. Milk is an exception to the rule here as the Caraka specifically recommends recipes be taken with milk. Kulattha or horse gram, which is a type of bean, is noted as a special heavy dietary item. Some physicians prohibit the use of kulattha for the period that shilajit remains in the body and others prohibit it for the remaining period of one's life (Sharma 2000). Susruta also notes that persons impregnated with shilajit should avoid the meat of kapota (pigeon). The Astanga Hrdayam adds kākamāci (*Solanum nigrum*, black nightshade) to the list of substances to avoid during the use of shilajit (Murthy 2001). (Bhishagratna 1998). Do not use with high uric acid count (Tirtha 1998). Shilajit is not for febrile diseases (Frawley 2001). Although shilajit is used to treat kidney stones, use caution if the stones are made of uric acid or if uric acid crystals are in the urine as uric acid increases with the administration of shilajit. For this same reason, shilajit is contraindicated in gouty arthritis. (Halpern 2003).

ADVERSE EFFECTS

Shilajit may be utilized safely in clinical practice because shilajit is reported to be quite safe up to a dose of 3 g/kg in mice (24h mortality) (Frotan 1984).

DRUG INTERACTIONS

No drug interactions were found at the time of writing this paper.

BRANDED PRODUCTS

Sources of commercial shilajit:

(all prices as of Aug 2004)

Banyan Botanicals:

Shilajit 90 tablets (300mg/tablet) \$18.95

Bazaar of India:

Shilajit 60 vegicaps (650mg/cap) \$15.99

Shilajit 1 lb pwd \$69.75

Shilajit 8 oz pwd \$54.99

Shilajit 3 oz pwd \$23.99

Shilajit 1 oz raw crystals \$18.00

Dabur:

Purified extract from 500 mg of raw shilajit, 100 capsule \$17.99

Shilajit in compounded products:

Banyan Botanicals sells Chandraprabha as a traditional ayurvedic formula. Its contents include guggulu, shilajit, chitrak, musta and nishoth. They say that Chandraprabha acts on the urinary tract and reproductive organs, and is used to remove excess kapha from the system. Chandraprabha 90 tablets (300mg/tablet) \$18.95. Chandraprabha is recommended for management of Medhu meda (Diabetes Mellitus) and Ikshu meha (Alimentary glycosuria) (Qutab 1996). Dr Frawley also recommends Chandraprabha for Diabetes (Frawley 1989).

Pills made with equal quantities of guggul and shilajit are prescribed during fractures (Puri 2003). A highly nutritious preparation, called Rativallabh pak is made from a number of ingredients including a significant quantity of Kikar (*Acacia nilotica*) also known as gum arabica and a minor amount of shilajit. This compound promotes "the proper sexual life of both males and females" (Puri 2003). It also is of immense use after childbirth as it imparts beauty and health to mother and infant. As part of the geriatric tonic, Navratnakalpa Amrit, shilajit assists in the formula's effect of strengthening all parts of the body, stabilizing vata, pitta and kapha (Puri 2003).

In an antistress immunomodulator formulation, Trasina by Dey's Medical Stores, shilajit assists (Puri 2003). Each capsule contains: Aswagandha 80 mg., Tulsi 190 mg., Shilajit 20 mg., Guduchi 10 mg., Katuka 10 mg., Bhingaraj 10 mg.

Shilajit also assists in a number of formulations to increase sexual vitality. Shilajit plays a role in an aphrodisiac formulation from Deesons called Mucuna Forte, in an sex tonic formulation, Spy by Yogi Pharmacy, in a vitality and tonifying formula called Strenex by Zandu, in a sexual stimulant formula for men called Tentex forte by Himalaya Drug, and in a formula that increasing sexual activity and libido called Ashree Forte, from Aimil pharmacy (Puri 2003).

The Ayurvedic jelly Chyavanprash contains shilajit as one of its main ingredients (Frawley 2001). Chyavanprash sold by Banyan Botanicals, Tri-Health, Bazaar of India, Himalaya Herbal Healthcare and Nature's Formulary do not contain shilajit.

CONCLUSION

Shilajit is truly a remarkable substance with a long history of human usage for healing for the urinary system and for diabetes. Unfortunately, many of those who sell shilajit or products containing it, make many wild claims for shilajit's ability to cure diseases. While compiling the list of modern indications for shilajit, I chose to only include what I considered "reputable" sources and excluded any sources that were selling shilajit. I purposefully also excluded Internet sources for this information as I felt their claims were exaggerated beyond reality. Even still, examining the list of modern indications for shilajit, one can hardly believe that it could have such a wide and varied effect on the human body. Herbal dietary supplements are big business in the United States. More than 40% of adult Americans use some form of alternative medicine, including herbals, massage, chiropractic, and hypnosis, and spent \$5.1 billion out of pocket for herbal therapies in 1997. Herbal use increased by 380% and megavitamin use by 130% from 1990-1997. More than 60% of people do not disclose their use of complementary medicine to physicians (Eisenberg 1998). As herbal supplements have gained popularity, many botanicals most Americans had never even heard of a decade ago have become widely available. Echinacea, ginseng and St. John's wort, for example, are now sold in supermarkets, pharmacies and discount stores. More exotic botanicals, meanwhile, can be purchased at health food stores, specialty shops, through catalogs and the Internet. If shilajit were available at your local pharmacy would self-prescribed usage be the best thing for everyone? In light of this, one hopes that shilajit not be consumed by this money making machine and exploited for profit only. My fear is that shilajit might become a modern snake oil, reminiscent of 19th century preparations, only to be cast aside by modern researchers. The clinical studies on shilajit, conducted have so far; have been conducted on animals only. These studies seem very preliminary and my hope is that respected scientists, in the United States, India and throughout the world, continue their investigations into the healing substance – shilajit.

REFERENCES

- Acharya SB, Frotan MH, Goel RK, Tripathi SK, Das PK. Pharmacological actions of Shilajit. *Indian J Exp Biol.* 1988 Oct; 26(10): 775-7.
- Bhishagratna KK. *Susruta Samhita* Vol 2, Chapter XIII. Varanasi, India: Chowkhamba Sanskrit Series Office, Varansi-1, 1998.
- Bucci LR. Selected herbals and human exercise performance. *American Society for Clinical Nutrition*, 2000 Aug; 72(2 Suppl): 624S-36S. Review.
- Chopra, R N, Chopra I C, Handa K L & Kapur L D. *Chopra's Indigenous Drugs of India.* 2nd Ed. B. K. Dhur of Academic Publishers, Calcutta India, 1958
- Dabur. Shilajit: How was it discovered. From website copyright 2003.
<http://www.dabur.com/EN/General/faqs.asp?ID=44&FaqID=283&showAns=y#F1>
- Dash B. *Materia Medica of Ayurveda* B. Jain Publishers, New Delhi, 1991
- Eisenberg DM, Davis RB, Ettner SL, et al. Trends in alternative medicine use in the United States, 1990-1997: results of a follow-up national survey. *JAMA* 1998;280:1569-75.
- Frawley, David. *Ayurvedic Healing.* Salt Lake City, UT: Passage Press, 1989.
- Frawley, David and Lad, Vasant. *The Yoga of Herbs.* 2nd edition. Pg 250. Lotus Press. Twin Lakes, WI, 2001.
- Frotan, M.H., and Acharya, S.B. Pharmacological studies of shilajit. *Indian Journal of Pharmacology* 1984 16,45.
- Ghosal S, Lal J, Singh SK, Goel RK, Jaiswal AK, Bhattacharya SK. The need for formulation of Shilajit by its isolated active constituents. *Phytotherapy Res* 1991; 5: 211-6.
- Ghosal S, Lal J, Srivastava RS, Bhattacharya SK, Upadhyay SN, Jaiswal AK, Chattopadhyay U. Immunomodulatory and CNS effects of sitoindosides IX and X. *Phytotherapy Res* 1989; 3: 201-6.
- Ghosal S, Singh SK, Kumar Y, Srivatsava R. Antiulcerogenic activity of fulvic acids and 4-methoxy-6-carbomethyl biphenyl isolated from shilajit. *Phytother Res.* 1988;2:187-91.
- Ghosal S, Standardization of Ayurvedic drugs and preparations. *Proceedings of Captain Srinivasa Murthi Drug Research Institute, Madras, India, 1987, 29-34.*

- Ghosal S, Reddy JP, Lal VK. Shilajit I: chemical constituents. *Journal of Pharmaceutical Sciences* 1976 May; 65(5): 772-3.
- Giurgea C. The nootropic approach to the pharmacology of the integrative action of the brain. *Cond Reflex* 1973; 8: 108-15.
- Goel RK, Banerjee RS, Acharya SB. Antiulcerogenic and antiinflammatory studies with shilajit. *Journal of Ethnopharmacology*. 1990 Apr; 29(1): 95-103.
- Gupta SS, Seth CB, Mathur VS. Effect of Gurmar and shilajit on body weight of young rats. *Indian J Physiol Pharmacol*. 1966 Apr; 9(2): 87-92.
- Halpern, Marc. *Principles of Ayurvedic Medicine*. 5th edition. Grass Valley, CA: California College of Ayurveda, 2003.
- Halpern, Marc. *Clinical Ayurvedic Medicine*. 4th edition. Grass Valley, CA: California College of Ayurveda, 2003.
- Jaiswal AK, Bhattacharya SK. Effects of Shilajit on memory, anxiety and brain monoamines in rats. *Indian Journal of Pharmacology* 1992; 24:12 - 17.
- Lad, Vasant. *Textbook of Ayurveda*. Ayurvedic Press, Albuquerque, NM, 2002.
- Mukherjee, Biswapati. *Traditional Medicine, Proceedings of an International Seminar*. Nov. 7-9 1992, pg 308-319. Hotel Taj Bengal, Calcutta India. Oxford & IBH Publishing, New Delhi, 1992.
- Murthy, KRS. *Astanga Hrdayam*. 5th edition. Krishnadas Academy, Varanasi, India, 2001
- Nadkarni, KM. *Indian Materia Medica*. 3rd edition. Vol 2, pg 23. Popular Prakashan Private Ltd. Bombay, India, 1954
- Puri HS. *Rasayana*. Taylor & Francis. London, England 2003
- Schliebs R, Liebmann A, Bhattacharya SK, Kumar A, Ghosal S, Bigl V. Systemic administration of defined extracts from *Withania somnifera* (Indian Ginseng) and Shilajit differentially affects cholinergic but not glutamatergic and GABAergic markers in rat brain. *Neurochem Int*. 1997 Feb; 30(2):181-90.
- Sharma, R. K. and Bhagwan Dash, trans. *Caraka Samhita*. Vols III, Chap I:3 pg 50-54. Varanasi, India: Chowkhamba Sanskrit Series Office, Varansi-1, 2000.
- Tierra, Michael. *Planetary Herbology*. Lotus Press. Twin Lakes, WI, 1988.
- Tirtha, Swami Sada Shiva. *The Ayurvedic Encyclopedia*. Ayurveda Holistic Center Press. Bayville, NY, 1998.

Tiwari P, Ramarao P, Ghosal S. Effects of Shilajit on the development of tolerance to morphine in mice. *Phytother Res.* 2001 Mar; 15(2): 177-9.

Qutab A. Ayurvedic Specific Condition Review: Diabetes Mellitus. *Protocol Journal of Botanical Medicine*, Winter 1996:138-139

ABSTRACTS

Abstracts from references used to write this paper follow.