



SHIBE YAMANI (ALUM) AND ITS THERAPEUTIC EFFECTS IN UNANI SYSTEM OF MEDICINE:A REVIEW

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ABSTRACT

Shibe yamani (Potash alum) commonly known as *phitkari* is used as medicine in Unani system, since antiquity. It is an easily available mineral origin drug, found in the form of crystals. Due to its astringent property *Shibe yamani* is mostly used as antiseptic, haemostatic, dessicant etc. It is an important constituent of various Unani compound formulations. Apart from therapeutic uses it is one of the most common coagulant used in water treatment. Various properties (physical, chemical, medicinal) and uses of Alum is reviewed in this article, as mentioned in Unani literature as well as established through modern scientific research.

KEYWORDS : Shibe Yamani, Alum, Unani Medicine, Phitkari

INTRODUCTION

Shibe yamani (Alum) is a traditionally known salt in Indian (Unani and Ayurvedic) and Chinese system of medicine.¹ It is a mineral origin drug commonly known as *phitkari*. It is a naturally occurring sulphate mineral also known as natural salt. Due to its astringent property, it is used as therapeutic agent in various bleeding and inflammatory conditions such as epistaxis, tonsillitis, pharyngitis, vaginitis, piles etc. It is an important part of many products created by pharmaceuticals, cosmetics and food industries.²

CHEMICAL NAME:

Potassium aluminium sulphate dodecahydrate^{3,4}

MOLECULAR FORMULA: $KAl(SO_4)_2 \cdot 12H_2O$ ^{2,3,4}

SYNONYMS: Potash alum, Potassium alum, Kalinite⁴

VERNACULARS

Unani: *Phitkari sufaid*⁵, **Arabic:** *Zaj abyaz*^{5,6}, *Shib yaman*,⁶ *Shib*⁷, **Persian:** *Zak sufaid*^{5,6,7}, **Hindi:** *Phitkari*^{7,8}, *Phitkhar*⁹, *Phitkar*^{10,11}, **Sanskrit:** *Sphatikari*⁷, *Phatikari*, *Surashtraja*, *Kamakshi*, *Tuvari*⁹ *Sithi*, *Angda*¹¹, *Venmalli*¹², **English:** Alum⁷, Sulphate of Alumina and Potash or of Aluminium and Ammonium, Aluminous sulphate.⁹ **Bengali:** *Patkiri*⁷, **Telugu:** *Patikuram*⁷ *Padikharam*⁹, **Tamil:** *Patikaram*⁷, *Adikharum*, *Shinacrum*⁹, **Punjabi:** *Phitkari*¹¹, **Urdu:** *Phitkari*¹¹, **Latin:** *Aluminum Sulphate*¹¹, *Guajarati & Duk:* *Phatkari*^{9,11}, **Malay:** *Tawas*⁹, **Maratha:** *Trae phitki*^{9,11}, **Sindh:** *Shinacran*⁹.

DESCRIPTION IN UNANI LITERATURES

MAHIYAT (MORPHOLOGY):

Zaj or *phitkari* is a mineral origin drug which is clean and bright in appearance like salt.⁵ It is having strong astringent property.¹³ Based upon colour it is of four types white, green, yellow and red. White coloured is called *phitkari*, green one is called as *heera kasees*, yellow one *kasees* and red as *surkh phitkari*.¹² According to Unani physicians best quality alum are those which easily shatters.^{8,14}



Fig 1: Alum (*Shibe yamani*) powder and crystal

MIZAJ (TEMPERAMENT):

Garm khushk (hot& dry) 3^{5,12,14,15}, *Barid 1° yabis 2°* (cold1⁰& dry2⁰)¹⁶, *Garm khushk 2°*⁶

NAFAE KHAS (SPECIFIC USES):

Beneficial for kidney, bladder and eye diseases.⁵

AFAL (ACTIONS):

Qabiz (astringent)^{12,14,16}, *habis* (haemostatic/styptic)⁸, *musakkin* (soothing)⁶, *mujaffif* (dessicant)^{12,15,16}, *ak'kal* (corrosive)⁵, *jali* (detergent)¹², *dafe' tashannuj* (antispasmodic / anticonvulsant)⁸, *dafe' ta'ffun* (antiseptic)¹⁷, *dafe' tape larza* (antipyretic)¹⁷, *dafe' naubate tap* (anti intermittent fever)^{18,6}, *mane' sailan* (prevents leucorrhoea)¹⁴, *mukhrije*, *jameen wa mashima* (abortifacient)⁶, *mughalliz-i-mani* (retentive of semen)^{8,18}, *mane'-aashobe-chashm* (anti-conjunctivitis)¹⁷, *mudir* (diuretic)¹⁸, *muharriq* (calorific/stimulant)¹⁴, *muqawwie dandan* (strengthens teeth)¹⁶, *nafe' lissa damia* (useful in bleeding gums)¹⁸, *muqi* (emetic)³, *mufattite hiscate gurdah wa masanah* (lithotryptic)⁸ *mulattif* (demulcent)^{16,20}, *munbite sha'r* (hair grower)¹⁶, *muhallile auram* (resolvent)⁸, *mundamile qurooh* (cicatrizant / healing agent)¹⁷, *musahhij* (abrasive)¹⁸, *musakhin* (calorific)^{10,18,19}, *muhazzil* (anti obesity)¹⁶, *muhallile riyah* (anti flatulent)⁵.

ISTEMAL (USES):

It is used in bleeding gums, gingivitis, pyorrhoea, oral thrush, tonsillitis and pharyngitis due to its astringent (*qabiz*) and desiccant (*mujaffif*) properties⁵. In ancient times mouth rinsing with a mixture of alum, salt, and vinegar was advocated by Hippocrates for oral health²¹. In case of anal prolapse and piles affected area is washed with its decoction and powdered alum is sprinkled over. Douching with alum solution is prescribed in case of inflammation of vagina, leucorrhoea, postpartum laxity of uterus and gonorrhoea⁶. *Shibe yamani 1masha* (0.972 grams) along with *misri 4 masha* and 250ml of milk taken orally is beneficial for kidney and bladder abscess as well as removal of renal and bladder calculi^{5,12}. 3 *masha* alum powder mixed with honey or sugar syrup given at an interval of one hour for few times is beneficial for whooping cough of children⁸. All types of alums are useful for wet itching and fast spreading abscess¹⁴ and along with *sirka* (vinegar) and *rogthane gul* (rose oil) it relieves wet itching¹⁶. It cures conjunctivitis¹². Along with honey, it is used in epistaxis and ear abscess¹⁴. *Shib* along with *aab zuft* is applied for dandruff¹⁵. Taken orally with milk is beneficial for trauma¹². Along with

sharab (alcohol) it is used for non healing ulcers.

Shib mixed with equal quantity of salt is applied over burnt area.¹⁵ Its application in form of paste restricts excessive enlargement of breast (hypertrophy).¹⁶

MIQDARE KHURAK (DOSAGE):

1 *masha*¹² (0.972 grams), 1 *masha* - 1.75 *masha*,⁵ 2 - 4 *ratti*,⁶ (8 *ratti* = 1 *masha*) **Muzir (Harmful effects):** Harmful for lungs,^{5,12,14,16} stomach⁵ and intestine.^{5,12} **Musleh (Corrective):** Ghee, milk,^{5,12} *loabat*¹⁶ **Mazah (Taste):** Bitter, pungent,⁵ sour, sweetish and astringent²² **Badal (Substitute):** *Phitkari surkh*, *naushadar*, *kafe darya*,⁵ *namake siyah*¹² and *aqaqia*.¹⁶

MURAKKABAT (COMPOUND FORMULATIONS):

Sunoone mukhrije rutubat, *safoofe istehaza*²² *barude kafoori*, *habbe siyah chashm*²³, *dawae sozak*, *habbe siyah*, *habbe sozak*, *jauhare kalan*²⁴, *jauhare naushadar*²⁵, *kuhl gule kunjad*, *kushate hadtal*²⁴, *kushate murakkab*, *kushtae gaudanti*²⁵, *kushtae sammulfar*, *kushtae sange basari*, *kushtae sange jarahat*, *kushtae seesa*, *kushtae shangari*²⁵, *majune kundur*, *manjan musakkin*, *safoofe indar julab*, *safoofe Phitkari*, *safoofe surkh*, *shiyafe zufra degar*, *shiyafe ahmar*, *sunoone chob chini*, *sunoone khas*, *sunoon zard*, *sunoone supari*, *sunoone kalan*, *surma muqawwie basar*, *tilae surkh*, *zaroore bhodal kushat*²⁴, *kuashate para*²⁷.

PHYSICO-CHEMICAL PROPERTIES / SCIENTIFIC DESCRIPTION

It is colourless, transparent, odourless, crystalline masses or granular powder with a sweetish astringent taste. It is a hygroscopic material which when exposed to air absorbs water.¹⁰⁰ When heated it melts and at about 200°C loses its water of crystallisation with the formation of the anhydrous salt. A 10% solution in water has a pH of 3 to 3.5.²⁰

Elements: Potassium, aluminium, sulphur and oxygen, **Molecular wt:** 258.20 g/mol, **Melting point:** 92.5°C, **Boiling point:** 200°C **Solubility:** Soluble in cold water, very soluble in hot water, insoluble in alcohol, ether, acetone and other organic solvents.⁴

ORIGIN/PRODUCTION:

Extensively manufactured in India, chiefly in the Punjab, Bihar and Cutch.⁷

ACTIONS

Astringent,^{7,28,29} styptic,^{27,29} emetic,^{27,28} haemostatic³⁰ and antiseptic²⁹

USES:

1 - 4% of alum solution is used as mouthwash or gargle in stomatitis and pharyngitis.^{7,27} It is employed in the treatment of lead colic and as an emetic in the treatment of poisoning.²⁷ Application of alum crystals can be used as haemostatic for superficial abrasions, cuts and ulcers on the lips.^{27,29} Alum can be used as 0.5% irrigation in the treatment of leucorrhoea and it was used for the treatment of herpes simplex labialis.²⁷ Mixture of alum and egg white is extensively applied to contusions, sprains and echymosis. When burnt it is mild caustic in nature and is generally sprinkled as powder on indolent and foul ulcers.⁷ In Homeopathic system of medicine, potash alums are used in the treatment of dementia and asthma.³⁰ Due to its astringent property, it is efficacious in the treatment of intravesical haemorrhage caused by prostate and bladder cancer or haemorrhagic cystitis. Alum can also control haemorrhage from advanced rectal carcinoma or oesophageal varices. It is safe and effective and thus used as the drug of choice for persistent vesical haematuria.³¹ It also has cosmetic uses as deodorant by inhibiting the growth of the bacteria responsible for body odour. In ancient Babylon, physicians used alum in mouthwash, as pessary for meno-

rrhagia, as treatment for itchy scabs, gonorrhoea and purulent ophthalmia.²³

OTHER USES:

Used as colouring agent,¹¹ after shave agent, as flocculating agent for water purification. Due to anti bacterial properties used as deodorant. Useful as hair remover, anti wrinkle agent.³² Also used in paper industry, as flame retardant in fire extinguishers, in baking powder, in pickle making, in toothpaste, as a mordant (binder) in dyeing industry. It is also used as an ingredient in some homemade and commercial modelling clay.³³

TOXICITY

Aluminium toxicity causes neurofibrillary degeneration in the central nervous system which can lead to encephalopathy, malaise, speech disorders, dementia, convulsions and vomiting. It can also cause allergic reaction in susceptible individuals.³⁴

PHARMACOLOGICAL STUDIES

ANTIFUNGAL ACTIVITY

Rasha Abd. AL Mehdi Flayeh studied the antifungal activity of alum on yeast isolated from mouth lesions and concluded that alum could probably be used for the control of fungal isolates and prevent infections such as oral thrush and mouth ulcer.³⁵

ANTI OBESITY EFFECT

Oral intake of potash alum exhibited significant reduction in body weight, food intake, serum triglycerides, total cholesterol and high density lipoproteins on high fat diet induced obesity in Wistar rats.³⁰

ANTINEOPLASTIC EFFECT

Potash alum (CF-CpG-alum) has been used in the treatment of neoplasm in vivo in form of combined conjugate vaccine by Zhang et al. CF-CpG-alum produced a stronger antigen-specific immune response and inhibited tumour growth.³⁶

MOSQUITO LARVICIDAL EFFECT

Study by Preet & Seema demonstrated that larvicidal effect of potash alum against malaria vector *Anopheles stephensi* were comparable to various biological and chemical insecticides.¹

ANTIBACTERIAL EFFECT

A 0.02 M alum mouth rinse twice daily was found very much effective in reducing the salivary mutans *Streptococci* level in the children of age group 9-12 years.³⁷

HAEMOSTATIC EFFECT

Local application of aluminium potassium sulphate on tonsillar bed during tonsillectomy was found beneficial in regard to decreased volume of blood loss, procedure time and number of ties used.³¹

EFFECT ON RECURRENT APTHOUS ULCERATION / ANTI INFLAMMATORY

Tagreed et al. found that alum reduces inflammation of mucous membrane and promotes healing. Pain disappeared after treatment with alum from the first day of treatment. Alum shortened the duration of healing on RAU with lack of any side effects.²⁷

CONTRACEPTIVE EFFECT

Singh et al. showed the contraceptive effect of potash alum in an, in-vitro study Aqueous solutions of potash alum make sperms completely immotile or cause their death depending upon concentration accordingly.³⁸

ANTIMICROBIAL EFFECTS AGAINST AXILLARY MALODOR-PRODUCING BACTERIA

Study by al-Talib et.al revealed that alum has excellent

antimicrobial effects against axillary malodor -producing bacteria and is recommended to be used either directly by topical application or as an active ingredient in deodorants and antiperspirants. The antimicrobial activity of alum against axillary bacterial flora was tested in vitro using broth dilution method for different concentrations (0.937 – 20mg/mL) on Luria-Bertani broth. Alum showed excellent inhibitory effects on all tested bacteria.³⁹

CONCLUSION:

Shibe yamani is being used as medicine since antiquity. In present era it is essential to explore its medicinal values at molecular level with the help of various tools and techniques. More studies should be conducted to elucidate the molecular mechanism of interaction of this mineral origin natural drug, with human body in different diseases. There are many actions and uses of *Shibe yamani*, mentioned in Unani literature which is practised since old times. So it should be validated by conducting scientific research and prove the claims of Unani physicians.

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