

ABRAK (MICA) AND ITS UNANI FORMULATIONS– REVIEW**Mustehasan^{*1} and Misbahuddin Azhar²**

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ABSTRACT

Abrak is a tasteless, odourless non-metallic mineral composed of alumina-silicate having a sheet or plate like structure. It has four varieties on the basis of colour i.e. black, white, yellow and red. Black and white *Abrak* are used medicinally. Black is considered of superior quality. In India it abundantly found in Jharkhand and Andhra Pradesh. It is having Qabiz (*Astringent*), Muqawwi-e-Bah (*Aphrodisiac*), Daf-e-Sual wa Zeeq un Nafas (*Antitussive and anti-asthmatic*), and Daf-e-Humma (*Antipyretic*) actions. On the basis actions it is used to treat bleedings, sexual debility, fevers cough and Bronchial asthma. In present review Unani classical literature was searched for its complete description viz. temperament, actions, therapeutic, and dosage uses etc. For recent research in respect of toxicology, pharmacology and clinical

trials to prove the importance of *Abrak* computerized databases such as Medline, Pubmed, Ovid SP, Google Scholar and Science-direct were searched. *Abrak* is most commonly used in the form of Kushta (Calx). SOP and physic chemical parameters have developed by using modern tools with modern technique. *Kushta Abrak* is used in Unani Medicine since long time for various illness particularly for respiratory diseases and sexual debility. Toxicity of *Kushta Abrak* is yet to be reported. It may be concluded that researchers may conduct safety studies, pharmacological studies and clinical trials with other formulations to prove its importance.

KEYWORDS: *Abrak, Mica, Talc, Unani medicine, mineral drug, Kushta abrak.*

INTRODUCTION

Unani System of medicine was introduced in India during the eighth century. This system is based on the *Hippocratic* theory of four humours. The derangement either in quality or quantity of these humours leads to disease.^[1] Unani system of medicine has a detailed description of drugs that are utilized in many diseases, including respiratory diseases.^[2] *Abrak* and its formulations especially *Kushta Abrak* are used in Unani system of medicine since long for management of respiratory disorders. The earliest use of mica is reported dating back 40,000 years as a component of cave paintings. Mica was known to the ancient Egyptians, the Greeks, Romans, Chinese, and the Aztecs. The thick layers of mica mined at Mexico can be seen in great pyramid of Teotihuacán.^[3]

METHODOLOGY

The main objective of this review is to compile all information available in classical literature and recent research in respect of *Abrak*. In present review Unani classical literature was searched for its complete description viz. temperament, actions, therapeutic, and dosage uses etc. For toxicological studies, pharmacological activities, and clinical trials carried out to prove the importance of *Abrak* computerized databases such as Medline, Pubmed, Ovid SP, Google Scholar and Science-direct were searched. All the information on *Abrak* available in Urdu, Persian, Arabic and studies published abstract were included.

Vernacular Names

Arabic-Kokab-ul-arz, talaq, **Bangali** –Abhraka, **English** – Talc/Mica, **Gujarati** –Abhraka, **Hindi** – Bhoodal, Abhar sitarah, Abarak, **Persian**- Abrak, **Sanskrit**-Abhrak, **Tamil** - Abragam, Karuppu Appirakam, **Urdu**- Abrak.^[4-20]

DESCRIPTION OF DRUG

Abrak is a non-metallic mineral obtained from mines having tendency to split along definite crystallographic structural planes. It is a group of complex alumina-silicate minerals having a sheet or plate like structure with different chemical compositions and physical properties. It is tasteless, odourless, chemically non-reactive, insulator, does not absorb water and having heat resistant property.^[21] The name mica has been derived from the Latin word *micare* meaning to shine in reference to the shiny lustre of the micas.^[3] As per classical literature, *Abrak* has four varieties on the basis of colour i.e. black, white, yellow and red. Yellow and red variety is rarely found in India. Black and white *Abrak* are used medicinally. Black is considered of superior quality.^[5,7,9,16,18-19] Unani scholars have described four types of *Abrak*

on the basis on the basis of their reaction to heat; *Pinaka*, *manduka*, *naga* and *vajra*. The *pinaka* on subjected to heat this variety gets separated into smaller segments (lamellae). The *naag* on subjected to heat this variety produces hissing sound like that of snake. The *manduka* on subjected to heat this variety produces sound like frog (croaking) and the fragments bounces out. The *vajra* on subjected to heat this variety is not change so it considered to be ideal.^[7]



Abrak khaam (Mica ore)

Occurrence: Produced all over the world and according to British Geological Survey 2005, Koderma district in Jharkhand (India) had the largest deposits of mica in the world.^[22] In pure form *Abrak* is found in rocks formed by the cooling and solidifying of molten materials (igneous rock). In schist form (rocks having more or less parallel or foliated arrangement) found in metamorphic rocks (changed rocks due pressure and heat). After further modification, it becomes like a granular rock known as gneisses.

In India, mostly found in the area of Gudur, Kalichedu, Thalpur (Andhra Pradesh), Koderma, Giridih (Jharkhand), Ajmer, Bhilwara, Tonk, Pali (Rajasthan). It is also found in the states of, Karnataka, Kerala, Tamil Nadu and West Bengal.^[23]

Temperament

In Unani System of Medicine the general character of a drug are described in terms of its Temperament and graded in the first, second, third and fourth degree according to their potency. Unani scholars have described its temperament cold and Dry with second degree.^[4,6-18,20]



(Abrak)

ACTION

As per classical Unani literature actions are: Qabiz (*Astringent*), Habis-e-dam (*Styptic*), Mujaffif (*Desiccant*), Mughalliz wa Mumsik-e-Mani (*Retentive and Inspissant to Semen*), Muqawwi-e-Bah (*Aphrodisiac*), Daf-e-Sual wa Zeequn nafas (*Antitussive and anti-asthmatic*), Musaffi-e-Khoon (*Blood purifier*), Mufattit-e-eHisat (*Lithotriptic*), Mohallil-e-auram (*Anti-inflammatory*) and Daf-e-Humma (*Antipyretic*).^[4,6-18,20]

THEARACEUTIC USES

Unani scholars have recommended the use of *Abrak* in the following disease conditions: Nazla (*Catarrh*), Zukam (*Coryza*), Zeequn nafas (*Bronchial Asthma*), Jiryan-ud-dam (*Bleeding*), Sailan-ur-Reham (*leucorrhoea*), Suzak (*Gonorrhoea*), Surat-e-Inzal (*Premature ejaculation*), Jiryan (*Spermatorrhea*), Zof-e-bah (*Sexual debility*), Humma (*fever*), Tap-e-Diq (*Tuberculous fever*), Juzam (*Leprosy*), and Bawaseer-e-Khooni (*Bleeding piles*).^[4,6-18,20]

In the form of powder: In powder form the *Abrak* is used only after purification. If consumed without purification, it can stick to oral cavity, esophagus and stomach. *Oral* consumption of *Abrak* in the quantity of 2.25 gm is dissolved in the water of green leaves of *Bartang* (*Plantago major* L) is helpful to control the bleeding of Uterus, Rectum and *Sahaj-e-Ama* (abrasion of inner layer of intestine). The *local* application of paste prepared in the water of green leaves of *Bartang* (*Plantago major* L) is helpful in relieving following conditions: inflammation of soft areas of body (Breast, inguinal area, armpit, area behind ear), pruritus as well as to dry the wounds of leprosy. The *local* application of mixture prepared with powdered *Abrak*, *safaidi baize-e-murgh* (egg white), *Zaaj-e-Ahmar* (alum), *Sirka* (vinegar), *geru* (red ocher) and *khatmi* (*Althaea officinalis* Linn.) in equal quantity to the can minimize the heat effect to organs exposed to heat and the insect bite effects.^[4]

In the form of Kushta (*Calx*): In calx form it is used in the all disease conditioned mentioned above. However, the other methods of consuming calx can be described as under:

For Sexual Disorders

- (a). To increase the amount of seminal fluid it can be taken with honey and Qaranphal (*Syzygium aromaticum* L).
- (b). To increase the consistency of seminal fluid it can be taken with honey and sat gilo (extract of *Tinospora cordifolia* Thunb & Miers).
- (c). To control Jiryman-e-mani (spermatorrhea) can be taken with *salajeet musaffa* (purified asphalt), *filfil daraz* (*Piper longum* L) and honey.

For Gonorrhea

- (a). To relieve the trauma of genital organ and gonorrhoea it can be taken with *Jawa khar* (salt of *Triticum aestivum* Linn.) and *misri* (crystallized sugar).
- (b). To relieve the symptoms of gonorrhoea Kushta abrak in the dose of 125mg to 500 mg mixed with khamira sandal in the dose of 1 gm to 10 gm can be taken.

For Respiratory disorders

- (a). To get relief from bilious cough, it can be taken with zinger juice (extract of *Zingiber officinale* Roscoe) mixed with honey.
- (b). To get relief from phlegmatic cough, it can be taken with decoction of kateli (*Solanum xanthocarpum* Schrad. & Wendl).
- (c). To get relief from symptoms of tuberculosis and phthisis it can be taken with honey and Qaranphal (*Syzygium aromaticum* L).

For Leprosy

Pills prepared with Kushta abrak, bark of baikh haleela (*Terminalia chebula* retz) and jaggery or Kushta abrak taken with satawar (*Asparagus racemosus* Willd.) and jaggery is helpful in relieving symptoms of leprosy.

For Haemorrhoids

- (a) Pills prepared with Kushta abrak and jaggery can be taken to relieve non bleeding piles.
- (b) To get relief from phlegmatic piles it can be taken with decoction of zanjabeel (*Zingiber officinale* Roscoe).
- (c) To get relief from bleeding piles it can be taken with kunjad siyah (*Saesamum indicum* L.) and clarified butter.^[4]

Potent Action: The potent action of *Abrak* Daf-e-sual wa zeeq un nafs (*antitussive and anti-asthmatic*), Daf-e-Humma (*Antipyretic*).^[4,7,9-10,12,14-18]

Dosage: According to Unani the recommended therapeutic dose is 125 mg in the form of calx.^[4,7,9-10,12,14-18,20]

ADVERSE ACTION

According to Unani scholars *Abrak* may not prescribed to persons who have challenges with kidneys and spleen.^[4,7,9-10,12,14-18,20] Human beings working in Mica industry are liable to be exposed in three manners i.e. skin contact, eye contact and in through inhalation. The acute exposure may lead to irritation to skin, eyes and cough with breathing difficulty. The chronic exposure may lead to fibrosis in lungs (pneumoconiosis).^[24]

CORRECTIVES

Unani system of medicine also has a unique specialty of adding Corrective Drugs (*Musleh Adwiya*) to counter the toxicity of the main drug. Tukhm-e-Karafs (*Apium graveolans* L) kateera (*Astragalus gummifer*) honey and clarified butter are recommended as correctives or *Musleh* for *Abrak*.^[4,7,9-10,12,14-18,20]

SUBSTITUTE

In case of non-availability of required *Abrak*, Gil-e-qaimulia (Camolian earth) may be used in place of *abrak* for above mentioned action.^[4,7,9-10,12, 14-18]

IMPORTANT FORMULATIONS

Some important classical Unani formulations in which *Abrak* is one of the ingredients mentioned in National Formulary of Unani Medicine are:

Kushta Abrak kalan, Kushta Abrak Safaid, Kushta Abrak Siyah,^[25] *Qurs-e-Sual, Aksir Surfa.*^[26]

METHOD OF PURIFICATION OF ABRAK

There is special method for purification the *abrak* which has to be followed before using / adding to a formulation. Separate the layers of *Abrak* by pounding in an iron mortar. Keep the small pieces of *Abrak* in a bag of thick cloth along with small pebbles, Cowrie shells, Date seeds or Dhan (Paddy) and tie the bag. Dip this bag in hot water and rub vigorously with both hands. Squeeze small particles of *Abrak* out of the bag. Repeat the process of dipping the bag in hot water and rubbing is till all the particles of *Abrak* are squeezed out of the bag. Allow

the particles of Abrak to settle down at the bottom of the vessel and the water is decanted. Remove the *Abrak* particles and then allow to dry. The dried particles are called *Abrak Mahloob* or *Abrak Dhanab* or purified *Abrak*.^[26]

CHEMICAL COMPOSITION OF ABRAK

Two types of Mica considered important commercially. Muscovite also known as potash or white Mica or isinglass and other is Phlogopite known as Magnesium or amber Mica.^[27]

Muscovite: Found as thin, transparent, but durable sheets. Its common name Muscovy glass (Isinglass), has been derived from its use in Russia for windowpanes. It is Hydrated phyllosilicate mineral of aluminium and potassium.

Chemical formula:^[28] $\text{KAl}_2(\text{AlSi}_3\text{O}_{10})(\text{F},\text{OH})_2$, or $(\text{KF})_2(\text{Al}_2\text{O}_3)_3(\text{SiO}_2)_6(\text{H}_2\text{O})$

Phlogopite: It is yellow, greenish, or reddish-brown in colour.

Chemical formula:^[29] $\text{KMg}_3\text{AlSi}_3\text{O}_{10}(\text{F},\text{OH})_2$.

Kushta *Abrak safed* and its physicochemical parameters:

Tariq *et al* prepared the *Kushta abrak safaid* by using Muffle Furnace instead of traditional method as mentioned in classical literature. Physicochemical parameters were also recorded for future reference.

Method of Preparation: Triturate 60 g abrak mahloob (purified mica) in 60 ml of aab mooli (Juice of *Raphanus sativus* L). Add 120 ml aab gilo (juice of *Tinospora cordifolia* L) in triturated mixture and dry it. Add 60 g of shora qalmi (Potassium nitrate) to the mixture and leave for drying in sunlight for 1 day. Maintain peak temperature at 1008°C for 35± 5 minutes, above 800°C temperature for 20± 5 minutes and above 600°C temperature for 40 ± 5 minutes. Remove from furnace and dip in one litre water to remove the quantity of *shora qalmi*. dry kushta on electric heater. After drying store in an air tight container.

Organoleptic description: It was yellowish white in colour, tasteless, odourless, lustreless and smooth in touch. Fineness test, floating test, and wall stick test were positive.

The mean values of different physicochemical tests were as follows.

Bulk density and tapped density were $0.486 \pm 0.006\text{gm/ml}$ and $0.80 \pm 0.01\text{gm/ml}$ respectively. The Hausner's Ratio and Compressibility Index were 1.68 ± 0.01 and $39.90 \pm 0.02\%$ respectively. The pH in 1 % and 10 % solution 9.91 ± 0.02 and 10.56 ± 0.02

respectively. The percentage of loss of weight on drying was $0.005 \pm 0.00\%$. The percentage value of the total ash, acid insoluble ash, water soluble ash and water insoluble ash were $96.84 \pm 0.03\%$, $86.38 \pm 0.08\%$, $4.03 \pm 0.02\%$ and $87.63 \pm 0.19\%$ respectively. The percentage of the water-soluble extractive value was $4.83 \pm 0.06\%$. The percentage of loss of weight on ignition was 0.097 ± 0.00 .^[30]

CONCLUSION

Unani system of Medicine is having detailed description of drugs for treatment of different diseases, particularly for sexual disorders, respiratory disorders, skin disorders, digestive disorders etc. Many Unani drugs have proved their efficacy in skin disease e.g. *Iltehab-e-Jild Huzaazi* (seborrheic dermatitis),^[31] and in upper respiratory disease e.g. *Zeequn nafas* (bronchial asthma),^[32] in amraz-e-Kabid e.g. dyslipidemia.^[33] *Abrak* is generally used in the form of Kushta for various ailments such as for cough, bronchial asthma, haemoptysis, haemorrhoids, and sexual debility of male. Kushta dosage form is claimed to be very effective in small dose due to its quick action. Very little information on toxicity studies, pharmacological studies and clinical trial is available. In present review, all information related to therapeutic uses mentioned in Unani literature has been summarized. It may be concluded that researchers may use this information for further studies on Kushta abrak safaid and Kushta abrak siyah in terms of safety, efficacy on illness reported in the literature. Furthermore, it has also been observed that Kushta abrak siyah along with other Unani formulations is quite effective to resolve the cough related symptoms. In the present covid-19 pandemic era, the importance/ efficacy of classical Unani formulations of abrak such as Kushta abrak and Aksir surfa may be explored.

REFERENCES

1. Husain A, Sofi G, Dang R, Kumar N. Unani system of medicine - introduction and challenges. *Med. J. Islam. World Acad. Sci*, 2010; 18(1): 27-30.
2. Vohora SB. Unani Joshandah drugs for common cold, catarrh, cough and associated fevers. *J. Ethnopharmacology*, 1986; 16: 201-211.
3. Robert RG. *Archaeomineralogy*. springer.com, 2009; 238.
4. Ghani MN. *Khazaain-al-Advia*. Vol-II, Lahore, Barqi press, 1917; 79.
5. Nadkarni KM. *Indian MateriaMedica*. 3rdedn. Vol-II, Bombay, Popular Prakashan Private Limited, 1976; 123-30.

6. Ibn-Sina S. Canon of Medicine. Book-II, (English translation), New Delhi, Deptt. of Islamic Studies JamiaHamdard (Hamdard University), India, 1998; 45.
7. Khan MA. Muheet-e-Azam. Vol-I, (urdu translation), New Delhi, Central Council for Research in Unani Medicine Publication, 2013; 230.
8. IbnBaitar ZU. Kitab-al-Jami-ul-Mufradat-al Adviawal Aghzia. Vol-III, (urdu translation), New Delhi, Central Council for Research in Unani Medicine Publication, 1986; 229-30.
9. Rafiquddin M. Kunzul Advia Mufrada. Aligarh, University publication unit, Sarfaraz house, 1985; 67-68.
10. Hakeem, MA. Bustan-ul-Mufradat. Aijaz Publishing House Delhi, 2011; 53.
11. Majoosi AA. Kamil-us-Sana. (Urdu translation by Ghulam H Kantoori), vol-II, part I, New Delhi, Central Council for Research in Unani Medicine Publication, 2010; 280.
12. Kabiruddin M. Makhzan-ul-Mufradat al maroof Khawas-ul-Advia. Hyderabad, National fine Printing Press, 1955; 56-57.
13. Ali SS. Unani AdviaMufrada. 10thEds, New Delhi, National Council for Promotion of Urdu Language, 2004; 297.
14. Lubhaya R. Bayan-ul-Advia. Vol-I, Lahore, Idara Matba Sulemani, 2001; 35-36.
15. Singh D. Unani DaravyagunVigyan. Bombay, Nirnay Sagar press, 1949; 30-31.
16. Mustehasan, Ali A. Advia Madania. Delhi, Aijaz Publishing House, 2004; 1-3.
17. Tariq NA. Taj-ul-Mufradat (Khawas-ul-Advia). New Delhi, Idara Kitaab-ul-Shifa, 2004; 27-28.
18. Fazlullah M. Makhzan-ul-Mufradat maroof ba Jami-ul-advia. Lucknow, Matba Swatantra, 1907; 30.
19. Vohra SB, Athar M. Mineral Drugs Used in Ayurveda and Unani Medicine. New Delhi, Narosa Publishing House, 2008; 16, 124.
20. Israili MA. Tarjuma Aqsarai Sharah moujiz. vol-I, Lucknow, Matba Naami Munshi Nawal Kishore, 1907; 712.
21. [mineraleducationcoalition.org>mineral-database>mica](http://mineraleducationcoalition.org/mineral-database/mica).
22. Anonymoys. Annual report British Geological Survey 2005-2006. NERC 2006.
23. Anonymous. The Ayurvedic Pharmacopoeia of India. part-I vol-VII (Minerals and metals), new Delhi, Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (AYUSH), Ministry of Health & Family Welfare, Government of India, 2008; 1-2.
24. www.cdc.gov. CDC – NIOSH Pocket Guide to Chemical Hazards – Mica (containing less than 1% quartz).

25. Anonymous. National Formulary of Unani Medicine. Vol-I, part-V, New Delhi, Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (AYUSH), Ministry of Health & Family Welfare, Government of India, 2008; 53: 192-93.
26. Anonymous. National Formulary of Unani Medicine. Vol-I, part-VI, New Delhi, Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy (AYUSH), Ministry of Health & Family Welfare, Government of India, 2011; 34,99.
27. Anonymous. Indian Minerals yearbook 2018. (part III mineral reviews) 57th edition Minor Minerals 30.16 Mica”, Ministry of Mines, Government of India, 2019.
28. EncyclopediaBritanica>home>earthscience>muscovite (Achieved on 12.06.2020).
29. Webmineral.com>data>phlogopite(Achieved on 12.06.2020).
30. Tariq M, Chaudhary SS, Zaman R, Rahman K, Imtiyaz S. Physicochemical Standardization of KushtaAbrakSafaid: A Herbo-Mineral Unani Formulation. IJPSDR, 2013; 5(3): 129-132.
31. Azhar MU, Ahmad Z, Mustehasan. Effect of Unani medicine in Iltehab-E-Jild Huzaazi (seborrheic dermatitis) of head: a case study. International Journal of Scientific Research in Biological Sciences, 2020; 7(2): 41-43.
32. Akhtar J, Akram U, Azhar MU, Jamil SS. Anti asthmatic plants of Unani system of medicine: A scientific review. Indian Journal of Unani Medicine, 2011; 4(2): 73-77.
33. Azhar MU, Ayub S, Anjum N, Ahmad S. Effect of Jawarish Bisbasa on dyslipidemia-a case study. International Journal of Scientific Research in Biological Sciences, 2020; 7(1): 20-23.