



HAJR AL-YAHUD (JUDAS STONE): MINERAL ORIGIN DRUG OF UNANI MEDICINE- A REVIEW

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ABSTRACT

Hajr al-Yahud (Lapis judaicus) is a stone used in Unani Medicine under *Advia Ma'dani* (mineral drug), which is also known as Judas stone. Chemically it is silicate of lime. It is used for the treatment of various diseases like renal stone, anuria, dysuria, retention of urine, ulcers, per rectal bleeding etc. because of its activities like lithotriptic, diuretic, desiccant properties etc. this review provides detail about its identification, therapeutic uses and pharmacological studies.

Keywords: Hajr al-Yahud, *Lapis judaicus*, Renal Stone, Lithotriptic, Mineral drug

1. INTRODUCTION

Unani system of medicine (USM) uses all three natural sources of drugs (*Mawalid-i-Thalatha*) i.e. plants, animals and minerals in different dosage forms. It advocates therapeutic uses of herbal, mineral and metallic preparations in many diseases since century in clinical practice. Various mineral drugs from stones like *Zumurrud* (Emerald) (Kalam 2021), *Lajward (Lapis lazuli)* (Kalam 2020), *Yashab* (jasper) (Kabiruddin, 2014), *Aqiq* (agate) (Abdul H, 2011), are used for medicinal purposes after doing purification by specific methods. *Hajr al-Yahud (Lapis judaicus)* is a type of stone which is also used as medicine in USM. It is small to the *Myristica fragrance* and olive fruit and equal to the size of walnut but slightly oval in shape. (Baghdadi IH,

2005, Maghribi I, 2007, Kabiruddin M, 2014) It is a fossilized stone primarily containing silicate of lime. Its colour is whitish and the colour of its substance is dark red, some of them are flat. It is solidified, tasteless stone of short length resembling a small nut. (Ghulam N, 2007, Ghani N, 2010, Safiuddin, 2013). Almost all Unani physicians recommended *Lapis judaicus* for the treatment of urolithiasis as a single drug or in combinations with other drugs in various dosage forms. It is a medicine which is very effective in kidney as well as other urinary problems because it possess anti-inflammatory and anti-bacterial property. Stone in kidney and urine infection is very common problem and many of us suffering from these diseases. There are many allopathic medicine which helps to cure kidney stone but some works or some not and also they have side effects. *Hajr al-Yahud* helps to breakdown the kidney stones in smaller one and then passes it through the urine. Moreover, it is excellent Unani remedy for urine problems and benefits in case of obstructions in urinary path. *Lapis judaicus* as an ancient treatment of kidney stones has been described by great Unani scholar *Dioscorides* (1st Century) firstly mentioned this in his treatise *Kitab al-Hashaish (De material Medica)*, Galen (129-216 AD), and some famous Arab and Iranian scholars such as *Ibn-Sina*, *Razi*, and *Ahvazi* also. According to *Galen* it is best for renal calculus. (Khan MA, 2013, Duffin CJ, 2006) *Lapis judaicus* has a long history of use in both eastern and western traditional medicines for urinary diseases. (Makbul SAA *et al.* 2018) It is an important medicine which is used folklores of Iran, Pakistan, Afghanistan, and India.

2. MATERIALS AND METHODS

For the preparation of this review various classical books of Unani medicine and online published research articles were searched by the name i.e. Hajr al-Yahud, Judas Stone, Jew's stone, Sang-i-Yahud etc. for its description, identifying characteristics, chemical constituents, pharmacological studies, etc. All relevant articles up to 2022 were referred including 22 Unani books, 11 review and research papers published in PubMed, Science Direct Google Scholar and Research gate. Unani Terminologies for diseases and different pharmacological actions were taken from Standard Unani Medical Terminology, Published by Central Council for Research in Unani Medicine. The image of stone is taken after collecting it from crude drug vender in local market of Srinagar, J&K.

Distribution

It is commonly found in Jewish desert and hilly areas of Europe, North Africa, Palestine and Middle East. It is easily available in the market places of Iran, Afghanistan, Jordan, India and Pakistan. (Khan MA, 2013)

Mutaradifat (vernacular names)

Arabic: *Hajr al-Yahud, Hajr-i-Yahudi* (Ghani N, 2010, Khan MA, 2013, Kabiruddin M, 2014, Ali and Mustehsin, 2004, Anonymous 2006)

English: *Jews stone, Judas stone, lime ciliate, fossil encrinites, Lapis judaicus.* (Ali and Mustehsin, 2004)

Hindi: *Paththarber* (Ghani N, 2010)

Persian: *Sang-i-Jahudan, Zaitun Bani Israil* (Harawi Y, 2022, Safiuddin A, 2013)

Sanskrit: *Asturan* (Anonymous, 2006, Ghani N, 2010)

Urdu: *Sang-i-Yahud, Yahud Dana* (Ghani N, 2010)

Suriyani: *Sang Yahud, Kaff-i-Yahud* (Ghani N, 2010, Khan MA, 2013, Kabiruddin M, 2014. Ali and Mustehsin, 2004)

Description of drug in Unani literature

Dioscorides firstly mentioned this in his treatise *Kitab al-Hashaish*. (Dufin 2006) It is a brownish white, small, round oval and soft stone of a size of *ber* (jujube fruit), *chaliya* (catechu nut) or *balut* (oak fruit) (Anonymous, 2006). The name Judas stone was given in the middle-ages because it is found the place where the cities of *Yahud* (Judas) are present especially in Syria, Beirut (Lebanon) and commonly found in Palestine (Ali and Mustehsin, 2004). It is recommended to be used in two forms either powder mix with some other drug or in the form of *Kushta* (calx). Jews stones have a variety of morphological presentations i.e. Olive shape, bone shape, shell shape, spindle shapes and other shapes. (Faridi P *et al.*, 2013.) It bears various parallel lines coming from opposite directions and intersecting each other giving it an appearance like bright scales of a fish. It easily dissolves in water. (Ali and Mustehsin, 2004, Khan MA, 2013) The stone which has longitudinally parallel cracked linings, called female stone and its male stone is of white colour while female is of dark reddish colour, something yellowish. Some are found in flat form. It is believed to be fossil stone. It is used medicinally in the form of *Kushta*. The *Kushta* (calx) is prepared by putting *Hajr al-Yahud* at a high temperature till it oxidizes. The crude drug is however pre-treated with some catalytic agents (particular herbal extract/juice) to make it more efficacious. (Khan MA, 2013)



Fig. 01 showing specific feature, colour and shape of *Hajr al-Yahud* (Judas stone)

Taba'i Khususiyat (morphological characteristics)

Rang (colour): Dirty white (Abdul H, 2011)

Bu (odour): Odourless (Ghani N, 2010)

Qiwam (consistency): Hard

Maza (taste): Tasteless (Abdul H, 2011)

Shakal (shape): Oval or triangular (Abdul H, 2011)

Miqdar (size): Size is that of Areca nut or wall nut (Ali and Mustehsin, 2004, Khan MA, 2013, Kabiruddin M, 2014)

Satah (surface): Wrinkled, longitudinal cracked linings (Anonymous, 2006 Safiuddin, 2013, Khan MA, 2013)

Tahlil (dissolution): It dissolves in water with some sedimentation (Ali and Mustehsin, 2004)

Ajza-i-must'mala (parts used):

Powder of the stone is used in various treatments (Anonymous, 2006)

Mizaj (temperament):

Its temperament is hot in 1st degree and dry in 2nd degree. (Ali and Mustehsin, 2004, Kabiruddin M, 2014, Safiuddin A, 2013) Galen considered its temperament is neutral. (Ghani N, 2010)

Af'al (action):

Mudirr-i-bawl (diuretic), *Mufattit-i-hasat* (lithotriptic), *Mujaffif* (desiccant), *Mukhrij-i-hasat* (stone remover), *Musqit-i-Janin* (abortifacient). (Khan MA, 2013, Kabiruddin M, 2014, Abdul H, 2011).

Iste'malat (uses):

Hasā al-Kūliya wa Mathāna (urinary stones), *Uṣr al-bawl* (dysuria), *Habṣ al-bawl* (anuria) *Ihtibās-i-bawl* (urine retention), *Qarhā* (ulcers), *Bawāsir-i-Dāmiya* (piles). Some says that it is not useful in vesical stone (Maghribi I, 2007, Ali and Mustehsin, 2004, Khan MA 2013), it Increases libido also. Continuous use of these drugs can prevent the reformation of stone in kidney. It has lithnotriptic and diuretic actions in the body, which helps dissolving and pushing the kidney stones along the course of the ureter. (Harawi Y, 2022) The most important thing is that it has anodyne action, which absolutely reduces renal colic within first 2 and 3 dosages. *Hajr al-Yahud* reduces the symptoms like renal colic (pain caused by kidney stones), burning sensation in the urine, dysuria (difficult or painful urination). Externally uses as a dusting powder prepared from *Hajr al-Yahud* applied on the skin for the skin diseases like itching, ringworms, vesicular rashes. (Ghani N, 2010)

Specific method of preparation of Kushta of *Hajr al-Yahud*

100 g *Hajr al-Yahud* is ground into fine powder, placed in an earthenware flask and 200 ml of the *Raphanus sativus* juice (*Aab-i-Muli*) is added. After effective desiccation by means of *Gil-i-Hikmat*, the material is calcinated in a pit containing cow dung cakes. After the calcination the material is allowed to cool, 100 ml of *Aab-i-Muli* together with fine powder of Jawakhar 25gm (*Potassium Carbonate*) is added. The prepared material is again calcinated at a very high temperature ($\geq 5000^{\circ}\text{C}$) for the required period of time. When the fire burns itself out, the *Kushta* is taken out. It should be light soil coloured. It is sieved and soaked in the bottle (Anonymous, 2008, Firozuddin M, 2007)

Tarkib-i-iste'mal (method of administration)

- It is used in the form of Kushta or added with some compound formulations With almond oil it is used to treat coagulated blood in urinary bladder, it dissolves the blood clots. (Kabiruddin M, 2014, Ali and Mustehsin, 2004)
- Due to its diuretics and stimulant properties it is used for the treatment of *Ihtibās-i-Bawl* and renal calculus. 2 g *Hajr al-Yahud* dissolved in 250 ml water is used with *Roghan-i-Badam Talkh* 5 ml for the treatment of kidney stones and relieving dysuria. (Maghribi I, 2007, Ansari MY, 2014)
- It is recommended to be used in two forms either powder mix with some other drug or in the form of Kushta. (Safiuddin A, 2013, Kabiruddin M, 2014. Ali and Mustehsin, 2004)
- A pill prepared from 24 gm *Hajr al-Yahud* by soaking with *Aloe vera* juice for three hours is given for the treatment of diseases of kidney and urinary bladder especially kidney stone. Along with Shira of *Khayarain* (*Cucumis sativa*), *Kahu* (*Lactuca sativa* L), *Khar-i-Khasak* (*Tribulus terrestris* L), *Maghz Tukhm Kaddu* (*Benincasa hispida*). (Firozuddin M, 2007, Anonymous 1986)
- It is used as a liniment for growing eyebrows. [Khan MA, 2013]
- It has an excellent healing property in case of fresh wound, if applied locally. (Khan MA 2013, Kabiruddin M, 2014]. (Ghani N, 2010)
- For the removal of urinary obstruction, 1.75gm *Hajr al-Yahud* is grate with water and drinks it with some water or wine, it will break bladder and kidney stone and clear the pathway. (Ghani N, 2010)
- It is used as a *Latukh* (smear) in case of proctitis. (Maghribi I, 2007)
- As a liniment it is used in *waja' al-thadī* (mastalgia), *waja' al-mafasil* (arthralgia) and inflammatory diseases. (Maghribi I, 2007)
- A *Kushta* (calx) prepared from 0.25g *Hajr al-Yahud* dried in 3 Ser (3 lit. approx.) *Aab-i-Muli* (water of radish) put in air tight wrapped container placed on slow fire, is used in a quantity of 2g to dissolve renal calculus. (Kabiruddin M, 2008)
- Its Safuf (powder) is prepared with the help of *Tukhm-i-Khayarain* (*Cucumis sativa*), *Tukhm-i-Kharpaza* (*Cucumis melo*) each (18.75g), *Tukhm-i-Khurfa* (*Portulaca oleracea* L.) (7.5g), *Tukhm-i-Kaddu* (*Benincasa hispida*) (11.25g), *Nishtasta* (starch), *Katira* ((gum tragacantha), *Habb-ul-Qilt*

(*Dolichos biflorus* L.) (3.75gm) and *Hajr al-Yahud* (2g) mix with sugar and used along with black chickpea water. (Saifullah MH, 2009)

Miqdar Khurak (dose)

Its therapeutic dose is mentioned as 1-1 ½ g (powder) and 125-250mg Kushta (calx) twice a day with water. (Maghribi I, 2007; Khan, 2013, Kabiruddin M, 2014, Ali and Mustehsin, 2004). The maximum dose should not exceed from 2 g per day. (Ghani N, 2010)

Mazarrat (adverse effects):

It causes abdominal spasm and harmful for stomach, liver and spleen so it is not prescribed to those who have challenges with liver and spleen. It causes anorexia. (Khan MA, 2013, Baghdadi IH, 2005, Ghani N, 2010, Kabiruddin M, 2014, Ali and Mustehsin, 2004, Halim MA, 2009, Harawi Y, 2022, Maghribi I, 2007) and It is harmful for peoples having hot temperament. (Abdul H, 2011)

Musleh (correctives)

Samagh Arbi (gum acacia), *Katira* (gum tragacanth), *Shahad* (honey), *Lu'abiyat* (mucilage) and *Roghan-i-Badam* (almond oil). (Khan MA, 2013, Ghani N, 2010) Kabiruddin M, 2014, Ali and Mustehsin, 2004, Halim MA, 2009), *Safarjal* (*Cydonia oblonga*) *Sikanjbin*, (Maghribi I, 2007) (Abdul H, 2011)

Badal (substitute)

Sang-i-Sar-i-Mahi (silicate of lime), *Tukhm-i-Karafs* (*Apium graveolens* L.) and *Habb-ul-Qilt* (*Dolichos biflorus* L.). (Khan MA, 2013, Ghani N, 2010) (Abdul H, 2011)

Murakkabat (compound formulation)

Dawa-i-Gurda (Anonymous, 2011), *Kushta Hajr al-Yahud*, *Ma'jun Hajr al-Yahud*, *Safuf Hajr al-Yahud* (Safiuddin A, 2013, Anonymous, 2006), *Ma'jun Yadullah*. (Anonymous, 2006, Anonymous, 2006), *Ma'jun Ibn Sarafiyun* (Anonymous, 2007), *Ma'jun Sang-i-Sar-i-Mahi* (Anonymous, 2008, Kabiruddin M, 2008, Azmi WA, 2010), *Iksir-i-Atfal*, *Qurs Suzak* (Anonymous, 2011), (Anonymous 2006, Azmi WA, 2010) *Daw-i-Sangdan*, *Qurs Bladur*, *Mufareh Kabir* (Anonymous, 1986) are the important compound formulations of *Hajr al-Yahud*. (see **Table 01** for detail)

Table 01: Showing compounds of Hajr al-Yahud, their dosage and indications

S. No	Name of Compounds in which <i>Hajr al-Yahud</i> is one of the important ingredients	Dose and mode of administration	Indications
01.	<i>Dawa-i-Sang Dana</i>	125mg with 12gm Sikanjbin Buzuri, twice a day.	It is useful in kidney and bladder stone. (Anonymous,1986)
02.	<i>Dawa-e-Gurda</i>	3g twice a day	Anti-colic and lithotriptic activity. (Anonymous,1986)
03	<i>Hajr al-Yahud Bhasma</i>	250 gm daily with coconut water or Gulqand	It is used as diuretic, Renal calculi and urinary diseases. (Vohra and Athar, 2008)
04.	<i>Iksir-i-Atfal</i>	500mg powder up to the age of 6 month and 3 gm for adults.	It is stomachic (Anonymous, 2011, Anonymous, 2006)
05.	<i>Kushta Hajr al-Yahud</i>	125-250 mg, orally	It is useful in kidney and bladder stone. (Safiuddin A, 2013, Anonymous, 2006)
06.	<i>Ma'jun Hajr al-Yahud</i>	5-10 mg, orally	It is useful in kidney and bladder stone, painful maturation, oligourea. (Safiuddin A, 2013 Anonymous, 2006)
07.	<i>Ma'jun Yadullah</i>	8-10 gm, orally	It has lithotriptic property. (Anonymous, 1986, Anonymous, 2006)
08.	<i>Ma'jun Ibn Sarafiyun</i>	5gm, orally	Due to its lithotriptic activity it is useful in renal and bladder stone (Anonymous, 2007)
09.	<i>Ma'jun Sang Sar-i-Mahi</i>	10 gm with Arq Anannas 125ml.	It is useful in kidney and bladder stone (Anonymous, 2008, Kabiruddin M, 2010)
10.	<i>Mufareh Kabir</i>	5 gm with Sharbat-i-Anarain.	Used as a tonic for stomach and liver. (Anonymous,1986)

11.	<i>Qurs Suzak</i>	4 tablets twice a day	It is useful in urinary tract infection (Anonymous, 2006 Anonymous, 2011)
12.	<i>Qurs Bladur</i>	One tablet after meal twice a day	It is useful in urinary disorder (Anonymous,1986)
13.	<i>Safuf Hajr al-Yahud</i>	5-10 mg, orally	It is useful in kidney and bladder stone (Safiuddin A, 2013, Anonymous, 2006, Shaifullah MH, 2009)

Chemical constituents

Based on CHN (Carbon, Hydrogen and Nitrogen analyzer) and GC/MS results the *Lapis judaicus* powder contain 26.55% carbon, 0.97% hydrogen almost no nitrogen and any organic material found. Moreover, trace amounts (less than 0.001%) of Phosphorus, Chlorine, Nickel, Palladium, Sodium, Sulphur, Titanium, Chromium, Copper, Potassium, Manganese, Palladium, Gadolinium, Bismuth, Ruthenium, Indium and Cerium were found. *Lapis judaicus* contains high concentrations of calcium, magnesium, and silicon and lower amounts of aluminium, sulphur, Iron, Potassium, and Strontium. Calcium Oxide (CaO) 49.77%, Magnesium oxide (MgO) 4.28%, Silicon Oxide (SiO₂) 1.07%, Ferric oxide (Fe₂O₃) 0.50%, Aluminium oxide (Al₂O₃) 0.33% and Strontium (Sr) 0.08%). No heavy metals were identified by atomic absorption spectrometer method. (Faridi P *et al.*, 2013.)

Pharmacological studies

Some of the pharmacological activities of *Hajr al-Yahud* have been reported in vivo and in vitro studies.

Anti-urolithic activity

The hydro-alcoholic extract of *Ma'jun Hajr al-Yahud* was tested for its acute and subacute toxicity in female albino Wistar rats. In acute study the single dose of the extract (300, 2000, 5000 mg/kg) was administered orally to rats. In sub-acute study, the extract was given at dose of 1/5, 1/10 and 1/15 mg/kg of maximum dose (5000 mg/kg) of acute toxicity study during 28 days orally. The hydro-alcoholic extract of the *Ma'jun Hajr al-Yahud* did not show any sign of the toxicity or changes in haematological, biochemical and histological parameters in rats when different doses were administered for 28 days. (Makbul and Jahan, 2020)

A double-blind, randomized, comparative clinical trial was done to assess the efficacy of hydrochlorothiazide and *Lapis judaicus*, and their combination (*Lapis judaicus* +hydrochlorothiazide) on kidney stones. The three study group had no difference in demographics (mean age and sex distribution)

baseline is stone size and mean level of serum parameter and urine specific gravity, which showed that the groups were comparable. Comparison of the size of the renal stone with baseline value two months after interventions, showed significant decrease in their size in the two groups which had been received the *Lapis judaicus* and *Lapis judaicus*+hydrochlorothiazide. (Faridi P *et al.* 2015)

Study of *Safuf Hajr al-Yahud* in the management of *Hasa al-Kulya* (renal calculus) was done by Rajesh (2016). This was a single blind clinical study, done on 20 patients of renal calculus belonging to 20 to 60 years of either sex were enrolled. The test drug was given 3g in the form of powder orally thrice a day with water for 75 days. The test drug was found significantly effective in both subjective and objective parameters. The result proved that *Safuf Hajr al-Yahud* is effective in the management of renal calculus. (Rajesh, 2016)

A similar study was done to evaluate the lithotriptic effect of *Safuf-i-Hajr al-Yahud* in patients of *Hasa al-Kulya* (nephrolithiasis). An open prospective clinical validation trail was carried out on 107 patients, renal calculi of 3-7 mm diameter diagnosed by USG. The result of this study was found substantial reduction 53% in the size of calculi. (Noor ZA *et al.* 2020).

Acute sub-acute and sub-chronic toxicity studies

Acute and sub-acute toxicity study of *Kushta Hajr al-Yahud* (calyx of lapis Judaicus) was done by (Makbul and Jahan, 2020) on female albino Wistar rats. The study was conducted as per the OECD guidelines. The formulation was administered orally in a single dose (300, 2000 and 5000mg/kg) in female Wistar rats in acute toxicity study. In sub-acute toxicity, drug was given at the dose of 4 mg/kg body weight for 28 days. During the study animal were observed for any toxic signs such as changes in animal behaviour bodyweight food and water intake in acute toxicity no mortality was observed to up to 5000 mg/kg body weight, hence test formulation was classified as safe as per OECD guideline 423. Repeated dose administration in three different doses this does not show any statistically significant changes in haematological and biochemical parameters. (Makbul and Jahan, 2020)

A study was done to demonstrate the scientific validity of detoxification method for preparation of *Kushta* and also to investigate the subchronic oral toxicity study of *Kushta Hajr al-Yahud* and crude material of *Kushta Hajr al-Yahud* (undetoxified form) in Wistar rats. Animals were orally treated once daily with test substance at the dose level of 1000 mg and in 2 subfractions 500mg and 250 mg/kg body weight for 90 days. Rats were observed throughout the study period the body weight, feed and water consumption were recorded weekly. Overnight fasted rats were sacrificed on first day blood sample were collected for haematological and biochemical studies and organs were collected to record the organ weight and tissue for histology. The results showed the activation of the liver enzyme due to the administration of *Kushta Hajr al-Yahud* at the dose level of 1000 mg/kg body weight, while in case of crude material of *Kushta Hajr al-Yahud* (undetoxified form) there were significant elevations of liver enzymes at all the three doses. The study concludes that the method of detoxifications adopted for preparing *Kushta* subsequently reduce the elements of the toxicity. (Dar A. *et al.* 2016)

RESULT AND DISCUSSION

In USM, medicines are obtained from three sources viz., Plants, animals and minerals. Mineral origin drugs include *Hajariyat* (stones), *Jawaharat* (Gems), *Dhat* (metals) and *Updhat* (aloes). *Hajr al-Yahud* (Jews stone) is one of the *Hajariyat* is being used for the treatment of various disorders, especially for renal diseases like kidney stone, dysuria, anuria, retention of urine etc. as mentioned in classical books like *Kitabul Mukhtarat fi'l Tibb*, *Kitabul Fatah*, as is clear from the review. Enormous research on animal origin drugs had been done by Unani physicians, and it was thoroughly documented in the traditional Unani literature. *Hajr al-Yahud* is one of the prime important drugs in USM. In traditional Unani medicine, the classical textbooks like, *Kitab-ul-Mukhtarat fi'l Tibb*, *Khazain al-Advia*, *Muhit-i-Azam*, *Bayaz-i-Kabir* etc. In the first phase of this review, we collected and identified the *Hajr al-Yahud* and further reviewed for various benefits of the medicine. It is interesting to note that *Hajr al-Yahud* have been used by Unani physicians in the treatment of madrosis, mastalgia, renal stone, proctitis, blood clot in urinary bladder and joint diseases. Only some studies have been documented and most of them are done on its anti-urolithiatic activity. As *Hajr al-Yahud* contains various toxic elements, so acute subacute and chronic toxicity study were also done. In the result no toxicity has been found in animals, which are provided *Kushta Hajr al-Yahud*, prepared after detoxification by specific method, as mentioned in Unani literature.

CONCLUSION

Hajr al-Yahud is best mineral drug for urinary problems and beneficial in case of obstruction in urinary, renal stone etc in comparison to other medicine. According to above findings we can conclude the clinical efficacy and safety of *Hajr al-Yahud* in the treatment of urolithiasis is established. Even the formulation of *Kushta Hajr al-Yahud* is found safe in animals. However, for the treatment of urolithiasis, *Hajr al-Yahud* is cost effective and free from side effects. The use of *Hajr al-Yahud* with other Unani formulations may minimize the recurrence of kidney and bladder stones. So there is a need for extensive scientific studies to validate most of the claims of USM regarding uses of *Hajr al-Yahud* and its compound formulations.

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