

GEOLOGICAL AND MINERALOGICAL SCIENCES

ARCHAEOLOGY AND ETHNOGRAPHY IN THE STUDY OF MEDICINAL PLANTS: THE CASE OF HARMALA

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Abstract

This article is dedicated to medicinal plants and their interrelation with archaeology and ethnography. The author attempts to explore how archaeological data and contemporary ethnographic observations can collaboratively enhance our understanding of the traditional use of medicinal plants and their significance in the cultural practices of Central Asian societies.

Archaeological findings that attest to the use of *Peganum harmala* in ancient Central Asian cultures enable the reconstruction of its usage context and its role in the medicinal practices of various communities. Ethnographic studies, in turn, help to uncover the traditions and rituals associated with the use of this plant, passed down from generation to generation. Furthermore, the study of *Peganum harmala* illustrates how archaeological and ethnographic methods can complement one another, forming a more comprehensive understanding of the interaction between humans and nature in the context of medicine.

Keywords: Central Asia; antiquity and early Middle Ages; archaeology; ethnography; medicinal plants; folk medicine; worldview; Zoroastrianism; rituals and ceremonies; harmala.

Introduction. For centuries, humanity has relied on plants not only to meet its nutritional needs but also to treat various diseases. Medicinal plants, as an integral part of traditional medicine, preserve the invaluable experience and knowledge of our ancestors accumulated over millennia. One of the most striking examples of such plants is harmala (*Peganum harmala*). This multifunctional plant possesses not only healing properties but also cultural and ritual significance in different regions of the world. Studying harmala through an interdisciplinary lens - archaeology and ethnography - opens new horizons for understanding traditional medical practices and the use of natural resources in Central Asia.

Unfortunately, archaeological discoveries of harmala seeds or twigs have not yet been recorded. However, there are archaeological artifacts that depict harmala. Nevertheless, it is safe to say that even in ancient times, special vessels were used for burning incense - intended to please deities and spirits - and for purification ceremonies. These vessels were filled with several types of plants, among which harmala was included.

Despite the lack of archaeological evidence, researchers turn to a unique corpus of ancient texts - the "Avesta" [13. P. 15–20]. It is important to note that the "Avesta" is not only the sacred scripture of Zoroastrianism but also a crucial source of knowledge about the culture, philosophy, and medicine of the peoples of Central Asia. As an encyclopedic work, it covers a wide range of topics, including mythology, ethics, rituals, nature, and - most relevant to our discussion - medical practice and medicinal plants.

The texts of this book contain ancient ideas about health and illness, methods of treatment, and the healing properties of various plants. The "Avesta" represents not merely a sacred text of Zoroastrianism but also a unique secondary modeling system that plays an essential role in understanding the cultural, historical, social, and medical contexts of ancient and medieval

society. It serves as a key to deciphering the complex interrelations between religious beliefs, moral norms, and everyday life, emphasizing the struggle between good and evil and the concept of health as a state of harmony with the surrounding world.

Methods. This study employs retrospective - historical and comparative analyses.

Discussion. In antiquity, people divided the plant world into two groups: beneficial medicinal plants created by the god of goodness, and harmful, poisonous plants created by the evil god Ahriman, who inflicted diseases upon humans through animals and air. Warm air was considered especially dangerous, as it was believed to contain "invisible particles of Ahriman" [13. P. 115–123].

Even without knowledge of microorganisms, people used harmala for disinfection. The plant was ground into powder and used to treat waste and to fumigate living quarters and temples.

Harmala (*Peganum harmala*), also known as Syrian rue, is a species of the genus *Peganum* of the family Nitrariaceae [10. P. 232]. In southern Russia it is known as mogilnik ("graveyard herb") because it grows in desert areas, and also as wild or steppe rue. Among the peoples of Central Asia, it is known under several names; for example, in Bukhara it is called isband (or sipand) or khazarisband. Dried and tied into small bundles, this herb is sold in nearly every bazaar.

Harmala is a perennial herbaceous plant about 50 cm high with a powerful multi-headed root up to 2–3 m long, extending vertically into the soil to the aquifers. Stems 30–80 cm high, branched, glabrous, green.

The leaves are alternate, short-stemmed, sessile, deeply three-, five-partitioned, with linear acute lobes.

In pharmacology, harmala is considered a poisonous plant with medicinal properties. Raw materials are harvested during the budding to early flowering stage and air-dried. Repeated harvesting in the same area is

possible only after two years. The plant also has insecticidal properties, and there are well-documented experiments demonstrating the successful use of harmala preparations in controlling agricultural pests. An infusion made from the “herb” is effectively used to treat scabies in animals, especially young camels.

The herb harmala, also known as Syrian rue, is recognized as an ancient dyeing plant. The seeds of this plant were used to obtain a durable dye for coloring wool and fabrics in various bright shades, ranging from yellow to red. Additionally, about 14-16% of the fatty oil extracted from the seeds is utilized in soap-making and paint production [7. P. 207-209].

The use of harmala as a component of domestic rituals has become firmly embedded in the traditional culture of Uzbekistan. In some regions, there is a custom of fumigating the bride and groom with harmala smoke during wedding ceremonies and hanging a small bundle of its twigs over the wedding canopy. This practice is considered both a purifying and protective measure against the evil eye and sorcery, as well as a means of bestowing happiness and fertility upon the newlyweds.

In the 1980s, ethnographer A. Shevyakov observed a fertility treatment ritual involving two women at the shrine of Shamor Avliya-kori in the Akkurgan

district of the Tashkent region. The older woman, a local healer, not only fumigated them with smoke but also made them squat over the burning Harmala while she whispered a spell, addressing the spirits: “Come out, go away, throw yourself into the hill, throw yourself into the water, go into the field”. Afterward, she took a cup of blood from a sacrificed rooster and smeared it on the women, carefully pouring the remnants onto the roots of an old tree.

The use of Harmala and its protective properties was also incorporated into the ritual practices of the Uzbeks in the Andijan region. During the “chillya” period, which is traditionally considered a time full of danger for both the mother and the child, they become particularly susceptible to magical “infection.” Therefore, a significant focus in caring for the mother and child is to protect them from the influence of “dark forces”. For all forty days, the mother and child are fumigated with the smoke of Harmala (isrik) twice a day: in the morning and in the evening. This ritual is performed either by the mother or the mother-in-law. Harmala is usually lit in a dustpan, and it is circled around the head and body of the mother three times, while lifting the hem of her shirt to allow the smoke to reach between her legs. The same is done around the infant three times [2. P. 67].



Fig. 1. Botanical motif of harmala plant on ossuary. Kafir-kala, 6th–8th century CE.



Fig. 2. Plate fragment depicting *Peganum harmala*. Kafir-kala, 7th century CE.

The beliefs about the magical properties of harmala (hazarispand) have long been intertwined with its use as a medicinal herb. To this day, this plant is con-

sidered an effective remedy for preventing air-borne infections, influenza, colds, measles, and even for repelling insects in the home. There are accounts from doctors recalling that in the 1920s and 1930s in Central

Asia, harmala was used to fumigate plague and cholera wards. This further confirms that this plant has been known since ancient times and was used as a protective and cleansing agent, as well as incense.

Speaking of incense, it is worth noting that it was used not only as a fragrant medium but also as a gift. For example, in China during the Tang dynasty, the ruler expressed his favor to favored courtiers and esteemed servants by bestowing upon them incense.

The peak of refinement was achieved by the sybarite of the 6th century, Han Xi-zai, who allowed the scent of incense to mingle with the aromas of his garden flowers. Additionally, the use of incense to arouse passion was well known among Tang courtesans [14. P. 210-211].

In addition, it was believed that the plant could endow a person with prosperity and fertility. Traces of these beliefs have been preserved in some customs of celebrating Nauruz.

Harmala is known not only for its beneficial properties as a medicinal remedy but also as an element as-

sociated with the smoking of incense and special vessels that are interpreted as braziers in terms of their cultic significance in ritual practices.

It is worth noting that the practice of fumigation remained prevalent in the palace etiquette of official ceremonies for a long time. For instance, the Cilician envoy Zemarch, sent by Justin II to the Turkic khagan Dizavul in 570 AD, notes that envoys at the khagan's camp were required to undergo a purification procedure by passing between two fires. The gifts brought by the envoys were also fumigated with smoke.

Archaeological discoveries confirm that, apparently, as early as the late antiquity and in the early medieval period, the types of portable altars and incense burners became more similar, with the lid finally disappearing. In the frescoes of Balalyk-tepe [3, 126], Varakhsha [15. P. 259], and Penjikent [5, P. 207], they feature a tall conical leg, sometimes adorned with images of deities, above which is a disc - a canopy - and a bowl for burning.

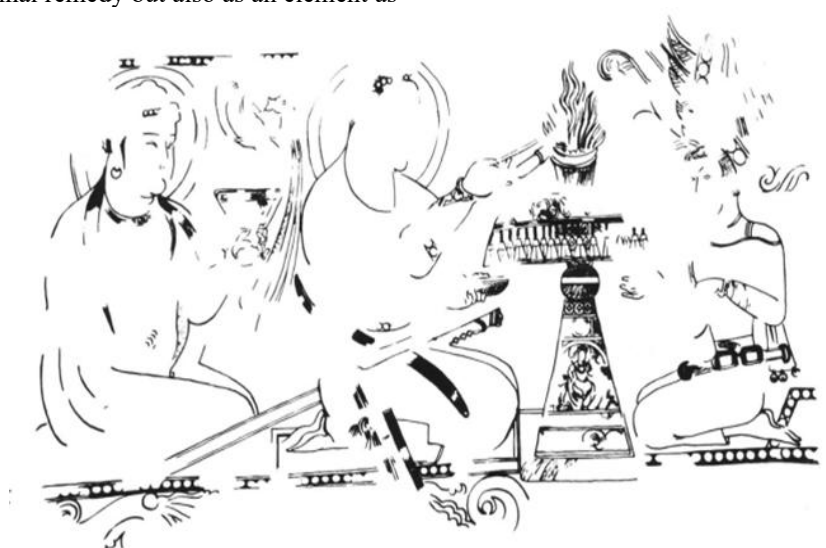


Fig. 3. Incense Burners. Varakhsha

Remarkably, a belt made of small bells could be fastened to the edge of the disc. Notably, on a wooden panel (V-VII centuries) from the settlement of

Kafirkala [6, P. 142-156], the lower tier depicts a moment when a kneeling figure is pouring something into the bowl of the incense burner (possibly harmala).



Fig. 4. Incense burner. Carved wooden panel from Kafir-kala

Conclusion. Thus, archaeological evidence and ethnographic observations together demonstrate that knowledge of the medicinal properties of the plant harmala was formed and passed down from generation to generation, becoming an integral part of the culture and daily life of the peoples of Central Asia. The comparison of plant motifs on artifacts with information about traditional medical practices not only deepens our understanding of ancient beliefs and rituals but also allows us to appreciate the practical significance of this knowledge for the survival and adaptation of humans to their environment.

The study of harmala motifs on ceramics, ossuaries, wall paintings, and other finds allows us to reconstruct the ancient peoples' perceptions of the value of this plant not only as a medicinal source but also as a ritual symbol of health, protection, well-being, and spiritual strength. Analyzing the use of harmala in the context of ethnographic data and traditional knowledge of folk medicine reveals a remarkable continuity in the use of this plant in rituals and ceremonies across Central Asia, particularly in Uzbekistan.

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