

PHARMACEUTICAL PREPARATION OF ZANGAR: A UNANI INORGANIC DRUG

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ABSTRACT

Unani system of medicine is an age-old, time-tested stream of medicine dating back 5000 years to the ancient Greece. In Unani system of medicine, drugs of herbal, metal/mineral and animal origin are used for cure of diseases. Of these, *Zangar* (verdigris/copper acetate), an inorganic, i.e., mineralo-metallic compound is used externally in different pharmaceutical dosage forms, such as *safoof* (powder), *marham* (ointment) etc. It is not readily available in the market. Hence, an effort was made to pharmaceutically prepare *Zangar* according to method mentioned in the famous Unani text, namely *Khazain-ul-Advia* authored by Najm-ul-Ghani. As per Unani pharmacopoeias, it belongs to the category of specialized Unani drugs, i.e., prepared under *noayyat-e-tarkeeb*. A Standard Operating Procedure (SOP) was made, and it was prepared according to the SOP. A battery of physico-chemical tests was employed. It has been first attempt to prepare *Zangar* under SOP.

KEYWORDS: Zangar, Verdigris, Copper acetate, Unani inorganic (mineralo-metallic) drug, SOP.

INTRODUCTION

Unani system of medicine is an integral part of AYUSH (Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy) streams of medicine which is very popular among the masses since ages due to its time-tested efficacy.^[1]

The roots of Unani system of medicine is in Greece (Unan/Yunan) that's why it is called Unani. The foundation of this system was laid by the great physician *Buqrat/Hippocrates* (460-277 BCE).^[2]

In India, Masih-ul-mulk Hakim Mohammad Ajmal Khan (1863-1927 CE) was happened to be savior of Unani Tib and Ayurveda. He was credited for institutionalization of education and training and research and development (R&D) in the sub-continent.

In Unani system of medicine, principally drugs of herbal origin are used, but partly animal, mineral and metallic origin are also used for cure or management of diseases, and these drugs are used after pharmaceutical procedures of purification, calcinations, and trituration to purify and enhance the therapeutic efficacy of the mineral and metal origin drugs.

Zangar (verdigris/copper acetate) is a mineral compound, greenish blue in colour. Generally, it is a combination of copper and *sirka* (vinegar).^[3]

Zangar is not available in the raw form in the market. *Zangar* is a metallic drug which is prepared through a special Unani pharmaceutical procedure. The procedure of preparing *zangar* is tedious and time consuming. Hence, it is not readily available in the market. It is prepared by a specialized method which is mentioned in Unani classical texts.

Its famous pharmaceutical preparation by the name of *Marham Zangar* which is very effective on chronic wounds, especially in diabetic foot ulcers, is not available in the market. Hence, the patients are deprived of such a significant Unani formulation.^[4,5,6,7]

This compound is used externally in different pharmaceutical dosage forms, such as *safoof* (powder), *marham* (ointment) etc.

According to Ibn Baitar, *Zangar* is of 2 types, namely

- (1) *Ma`dni* (Natural form)
- (2) *Ghair Ma`dni* (Synthetic form)

(1) *Ma`dni*: It is usually found in around copper mines and of several types The best type of *zangar* known as *dood* which found in and around copper mines.

Another type of natural *Zangar* is also found in planes, but its quality is not so good.

(2) *Ghair Ma`dni*: This type of *Zangar* is prepared in laboratory by taking a coarse powder or thin sheets of copper and *sirka*.

Chemically, *Zangar* or verdigris (copper acetate) is a solid a dark green compound. It is produced by the reaction of copper with a solution of acetic acid.^[2,8]

MATERIALS AND METHODS

Copper sheets and a Copper vessel were procured from the open market, Delhi whereas pure *sirka* made of sugar cane was arranged from countryside.

Method of preparation of *Zangar*

Zangar was prepared according to the method mentioned in *Khazain-ul-Advia* of *Najm-ul-Ghani*.

Three hundred grams of thin copper sheets were taken and dipped in 600 ml of *Sirka* made of sugarcane in a new copper vessel, and *Kaproti* (covering of pot with clay and cloth) was done. The copper pot was buried two feet deep in a moist place in Herbal garden of Tibbia College at Karol Bagh, New Delhi. It was regularly checked at an interval of 15 days. After 6 months, the vessel was dug out and lid of pot was opened. A greenish blue colored compound (*Zangar*) was separated from corroded copper sheets. It was found that 1/3rd part of the copper had converted into *Zangar* after interaction with *sirka*. The quantity of *Zangar* was weighed and noted down.

Zangar was sent to Shree Krishna analytical services, Delhi, in an aseptic air tight plastic packing for identification. The Voucher specimen of the drug vide Ref. No. SKF-10071401 dated 10/07/2014 was retained and deposited in the museum of P.G. department of Ilm-us-Saidla and Ilm-ul-Advia, Ayurvedic & Unani Tibbia College, Karol Bagh, New Delhi for the future reference.

DISCUSSION AND RESULTS

Present study was carried out to prepare a famous Unani drug *Zangar* by the means of traditional method described in *Khazain-ul-Advia* of *Najm-ul-Ghani*.

The results of final product are as follows

Three hundred grams of thin copper sheets and 600 ml of *sirka* were taken and from this combination about 100.90 gm (33% approx.) of *Zangar* was formed.

Organoleptic properties of *Zangar*

S No.		
1.	Colour	Greenish blue
2.	Shape	Irregular
3.	Smell	Pungent
4.	Size	Irregular

pH of *Zangar*

S. No.	pH in 1% solution of ethanol	pH in 10% solution
1	5.2	4.8

CONCLUSION

The aim of present study was to prepare *Zangar* in the classical form as mentioned Unani classical text, e.g., *Khazain-ul-Advia*. *Zangar* is not available in the raw form in the market. *Zangar* is a mineralo-metallic drug which is prepared through a special Unani pharmaceutical procedure. *Znagar* was prepared under Standard Operating Procedure (SOP).

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