

# Standardization of Amber-e-Ash-hab: A Premium Unani Marine Drug

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## Abstract

The current study is an attempt to standardize one of the important Unani drugs of the animal origin Amber-e-Ash-hab (Ambergris). Amber is used in various Unani formulations as it has tremendous medicinal properties and sanative effects. In some parts of Asia & Africa it was used as flavouring for food. It was also widely used in perfumery industry as a perfumery fixative; Amber is the slowest of all perfume materials to evaporate. Though it has now been substantially displaced by synthetics in perfumery industry. Amber has been used in many traditional systems of medicines for ages but due to its high cost and low availability, it is sometimes replaced by or adulterated with low quality substances. In order to check the adulteration and to make its precise identification, the drug was tested through Physico-chemical parameters, TLC, U.V. Spectroscopy etc.

**Keywords:** Amber-e-Ash-hab, TLC, U.V. Spectroscopy.

## Introduction

Amber-e-Ash-hab (Amber) or Ambergris got its name from French 'ambre gris' which means grey amber. In fact the European name Ambergris was derived from 'Anbar' which was given to it by Arabian society. Due to its restorative and aphrodisiac effects (Wittop, 1972; Taha, 1989), Amber is used in many Unani formulations to a great advantage in the treatment of Zof-e-Bah (sexual debility), Zof-e-Aam (general debility) and Zof-e-Aza-e-Raeesa (weakness of the principal organs like heart, brain, liver etc.) (Anonymous, 2006). Arq-e-Amber, Habb-e-Amber, Habb-e-Amber Momyaee, Dawa-ul-Misk Motadil Sada, Dawa-ul-Misk Motadil Jawahirwali are quite a few Unani formulations to mention where Amber is used as one of the ingredients for its excellent medicinal values (Anonymous, 2006).

Amber is a solid waxy substance produced as a biliary secretion of the intestines of the sperm whale. It is thought to be a substance protective against intestinal irritation caused by the indigestible beaks of squid and cuttlefish that the sperm whale feeds upon. The whale's intestine can hold only small lumps of amber. The larger pieces are regurgitated.

Amber can be found floating upon the sea or in the sand near the coast. It is usually found in the Atlantic Ocean; on the coasts of Africa, Brazil, Madagascar, The Maldives, China, Japan, India, Australia, and New Zealand (Parry, 1925). Most commercially collected Amber comes from the Bahamas Islands in the Caribbean.

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Amber is found in different shapes and sizes weighing up to 100kg (Burfield T., 2000). Fresh Amber is almost black and soft and has a disagreeable odour. After months of photo-degradation or oxidation in the ocean, it gradually hardens and develops a crusty & waxy texture, light grey colour and a pleasant smell (Wittop, 1972; Ohloff, 1980; Charles, 1990). The colour of Amber varies from black or dark brown to grey or yellow which tends to lighten with time. The chief constituent of Amber is ambrein which on auto-oxidation results in the formation of ambrinol and ambroxan, the main fragrant components of Amber (Karl-Georg Fahlbusch *et al.*, 2007).

### Materials and Methods

Amber was procured from raw drug dealer, New Delhi. It was free from any foreign matter. The sample was crushed to a coarse powder with the help of mortar and pestle (Fig. 1).

#### Physico-chemical parameters

Physico-chemical parameters like foreign matter, solubility in ethanol, water and hexane, total ash, acid in-soluble ash were carried out as per standard methods (Anonymous, 1998).

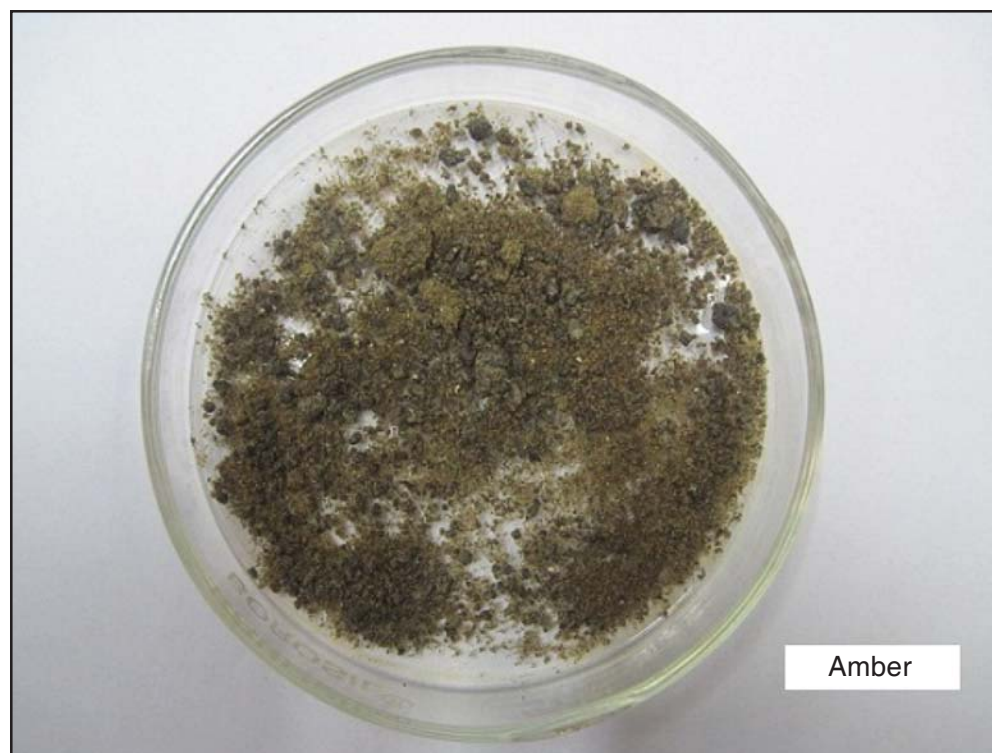


Figure 1: Amber

### Preparation of extract for TLC

0.5g of the drug sample was dissolved in 50ml of pet. ether (60<sup>0</sup>-80<sup>0</sup>) and refluxed for 20 minutes on a water bath. This extract was used as such for Thin Layer Chromatography (Wagner *et al.*, 1984; Stahl, 1996).

### Preparation of extract for U.V. Spectroscopic studies

1g drug was dissolved in 100ml of pet. ether (60<sup>0</sup>-80<sup>0</sup>) and refluxed for 15 minutes on water bath. The solution was made up to 100ml in a volumetric flask. This solution was used as such for U. V. spectroscopic analysis and pure pet. ether (60<sup>0</sup>-80<sup>0</sup>) was used as a blank solution (Willard *et al.*, 1965).

### Observations

Amber-e-Ash-hab was dark grey in colour with yellowish tint and had a waxy texture. It was free from any foreign matter. It melted at about 65<sup>0</sup> C to a fatty resinous liquid and at 100<sup>0</sup> C it vaporized into white fumes (Dauphin, ynm; Reis, 2013). These distinctive properties show that the sample of Amber was authentic.

### Results and Discussion

#### Chemical Analysis

The physico-chemical data of the drug are shown in Table-1. The water soluble extractive (0.38 – 0.42%) indicates that Amber is almost insoluble in water due to its waxy nature; on the other hand hexane soluble extractive (71.22 – 72.10%) shows that it is highly soluble in liquid hydrocarbons. The low value of acid insoluble ash of the drug indicates that the drug is free from siliceous matter. The heavy metal contents are below detectable limits (Table 2).

#### Thin Layer Chromatography Analysis

TLC of pet. ether (60<sup>0</sup>-80<sup>0</sup>) extract of the drug was carried out on pre-coated plate of Silica Gel 60 F<sub>254</sub> (E. Merck) using the solvent system of toluene – ethyl

**Table 1:** Physico-chemical Parameters

S.No.	Parameters	Values (%)
1.	Ethanol soluble extractive	6.75 – 7.02
2.	Water soluble extractive	0.38 – 0.42
3.	Hexane soluble extractive	71.22 – 72.10
4.	Total ash	0.54 – 0.60
5.	Acid insoluble ash	0.21 – 0.25

acetate (9:1). It showed six spots after spraying the plate with 2% ethanolic sulphuric acid followed by heating for about 10 minutes at 105<sup>0</sup> C in an oven (Table 3, Fig.2).

**Table 2:** Heavy Metals

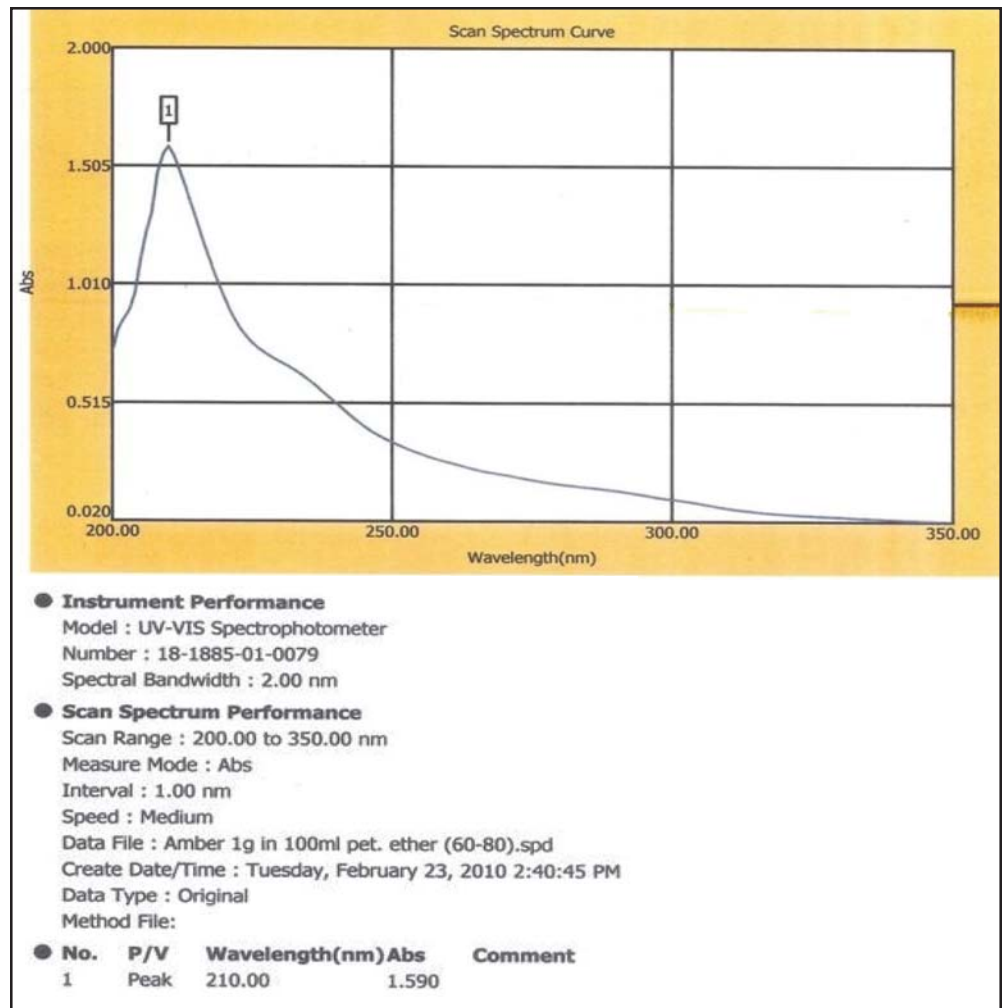
S.No.	Parameters	Values	WHO Limits
1.	Arsenic	Not detected	10 ppm
2.	Cadmium	Not detected	03 ppm
3.	Lead	Not detected	10 ppm
4.	Mercury	Not detected	1.0 ppm

**Table 3:** TLC Results

Extract	Solvent System	Spraying reagent	No. of Spots	Rf Values with colour
Pet. ether (60 <sup>0</sup> -80 <sup>0</sup> )	Toluene – Ethyl acetate (9 : 1)	2% Ethanolic Sulphuric acid	06	0.18 (Pink) 0.30 (Pink) 0.33 (Pink) 0.42 (Purple) 0.49 (Brownish orange) 0.83 (Peach)



**Figure 2:** TLC of Amber



**Figure 3:** U. V. Spectrum of Amber-e-Ash-hab

### U.V. Spectroscopic Studies

The U V spectrum of Amber shows a characteristic peak at 210nm due to an absorbance of 1.590 by the drug (Fig. 3). The sharp peak, without any noise, strengthens that the drug is pure.

### Conclusion

It is difficult to ascertain the authenticity of Amber as it is found in various shapes and sizes. Its colour also varies to a great extent. The present study, therefore, holds high significance as various physico-chemical standards, TLC profile and U. V. spectrum provide criteria for easy identification of real Amber-e-Ash-hab and ensure the quality of the drug.

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