

Comparative Pharmacognostical and Physico-chemical studies of Magical Herb–Ustukhuddus *Lavandula stoechas* L

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Abstract

Ustukhuddus (*Lavandula stoechas* L.) is one of the most important aromatic plants of Lamiaceae family. It is named as Jarub-i Dimagh (broom of brain) in Unani System of Medicine due to its scavenging property of evacuating morbid matters from the brain; those matters may cause neurological disorders like insomnia, amnesia, melancholia etc. The drug is used since time immemorial and was mentioned by Dioscorides in 1st Century AD for its various pharmacological properties. Various studies on its effect on nervous system have been explored by researchers which may attribute to its bioactive compounds present in it, like, glycosides, phenols, steroids, terpenes etc.

Present research paper deals with the comparative macroscopy, microscopic powder study and physicochemical studies of three different samples of Ustukhuddus. This study will be helpful for correct identification and genuineness of the drug sample.

Keywords: *Lavandula stoechas*; Insomnia; Glycosides; Steroids

Introduction

Ustukhuddus (*Lavandula stoechas* L.) is one of the most important plants of Lamiaceae family. Flowers are greyish blue in colour, found in clusters and smell like camphor. Taste is bitter. Its species are widely distributed in the Mediterranean region and cultivated in France, Spain and Italy. Dioscorides named the plant as 'stoechas', it is due to Stoechades, a group of islands on the south coast of Gaul near Marseilles where plant was grown abundantly. It is known "Romero Santo" in Spain which means sacred rosemary. The *Lavandula stoechas* L. was likely the first to be used for its essential oils. The Romans, Greeks, and Arabs all recognized its medicinal properties. Several researchers have evaluated the pharmacological effects of *Lavandula stoechas* L. essential oils and extracts, for its antibacterial, antifungal, insecticidal, antioxidant, anticonvulsant, sedative and anti-inflammatory properties. However, other potential pharmacological effects of this plant have not yet been evaluated.^{1,2,4}

Lavandula officinalis Chaix ex Vill (Lamiaceae) (syn. *Lavandula angustifolia* Mill.) tincture, commonly known as English Lavender or Ustukhuddus, has long been used in Iranian traditional medicine for some nervous disorders such as epilepsy and depression. Based on the experimental and clinical studies, *L. officinalis* generally has been considered as a sedative, antidepressive, antispasmodic, ant flatulent, antiemetic, diuretic, anticonvulsant, antibacterial, analgesic and a general tonic. Lavender cream with

foot-bath or alone can be used for pregnant women for reducing their stress, anxiety and depression.^{6,7,8,10,11}

Present research paper deals with the comparative macroscopy, microscopic powder study and physicochemical studies of three different samples of Ustakhuddus. Similar study has been published for other Unani drugs.¹²

Materials and methods

- 1. Crude drug collection and authentication:** The crude drug samples were procured from Jammu Kashmir, Khari Babri, New Delhi & local market of Ghaziabad and identified by the botanist using pharmacognostical method.¹
- 2. Powder Microscopy:** 5 grams of powdered drug sample was taken in a watch glass then stained with safranin, mounted with glycerine in a slide and different characters were observed under the microscope.⁹
- 3. Physicochemical analysis :** The physico-chemical studies of the drug were carried out according to UPI.^{3,5}

OBSERVATION AND RESULTS

A. Comparative Macroscopic study of Ustakhuddus sample-I,II,III (UK-I,II,II) (Fig 1-3) Table-1

Ustakhuddus-I (UK-1)	Ustakhuddus-II (UK-2)	Ustakhuddus-III (UK-3)
It is an evergreen shrub that usually grows to between 30 and 100 cm tall and occasionally up to 2 m (6.5 ft) tall in the sub species <i>L. stoechas</i> subsp. <i>luisieri</i> . Its leaves are 1–4 cm long, greyish and tomentose. The inflorescence is crowned by a mass of purple elongated ovoid bracts about 5 cm long. The flowers, which appear in late spring and early summer, are pink to purple, produced on spikes 2 cm long at the top of slender, leafless stems 10–30 cm (4–12 in) long; each flower is subtended by a bract 4–8 mm long. At the top of the spike are a number of much larger, sterile bracts (no flowers between them), 10–50 mm long and bright lavender purple (rarely white).	Same characters were observed as in sample -I (Ustakhuddus-I)	Same characters were observed as in sample -I (Ustakhuddus-I)



Ustkhuddus Plant Fig-1



UK-1

Fig-2

UK-2

Fig-3

UK-3

Fig-4

Ustkhuddus (UK) Drug Samples

B. Comparative Powder study of Ustakhuddus sample-I,II,III (UK-I,II,III)

(Fig 4-21) **Table-2**

Ustakhuddus-I	Ustakhuddus-II	Ustakhuddus-III
Warty trichomes, numerous, spherical shaped pollen grains, simple stellate branched trichomes, stone cells, thick walled fibers and vessels with spiral thickenings from pedicel, numerous glandular trichomes.	Same characters were observed as in sample -I (Ustakhuddus-I)	Same characters were observed as in sample -I (Ustakhuddus-I)

Ustakhuddus Sample-1 (UK-1)



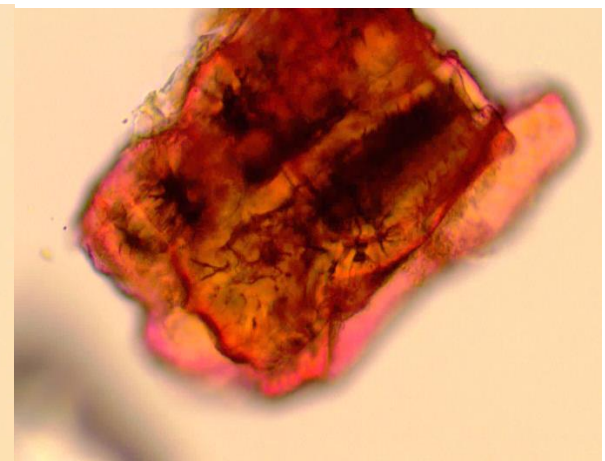
UK -1 warty trichome **fig 5.** 40x



UK-1 pollen grain **fig 6.** 40x



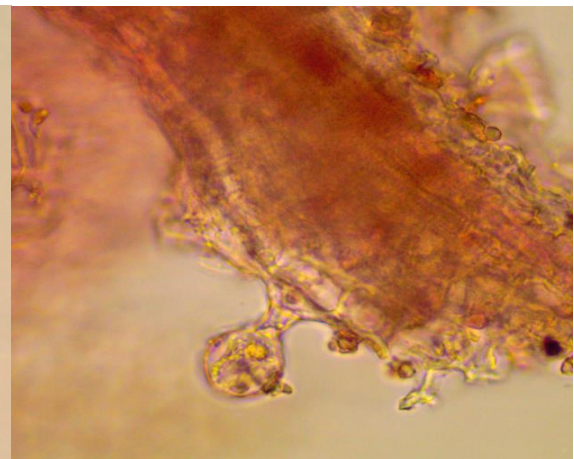
UK-1 Simple branched trichome **fig7.** 20x



UK-1 group of stone cells **fig 8.** 20x

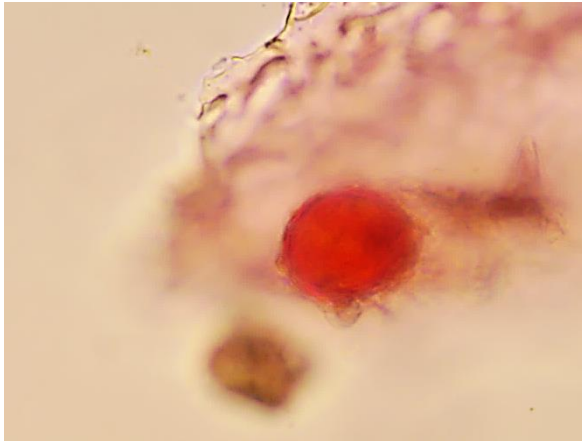


UK-1 fibre and vessels **fig 9** 40x

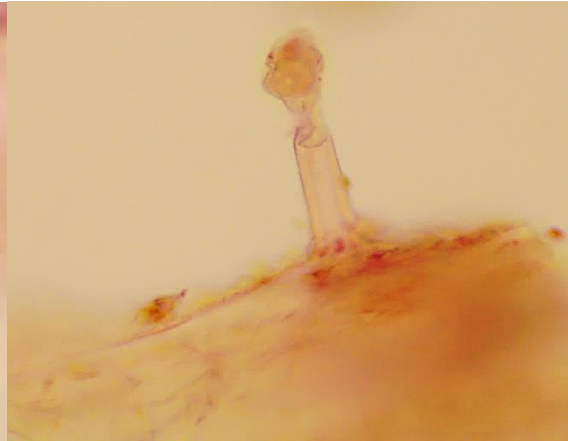


UK -1 glandular trichome **fig 10** 40x

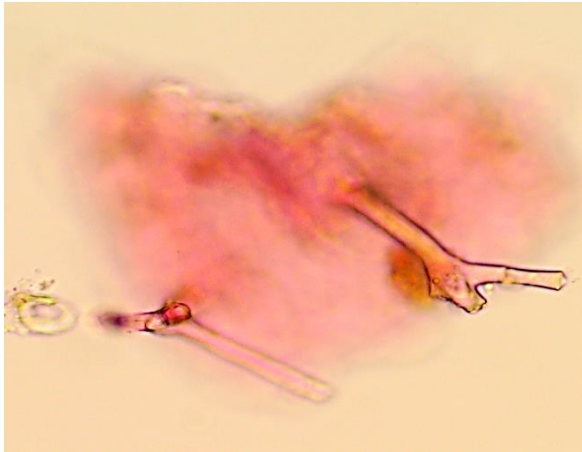
Ustakhuddus Sample-2 (UK-2)



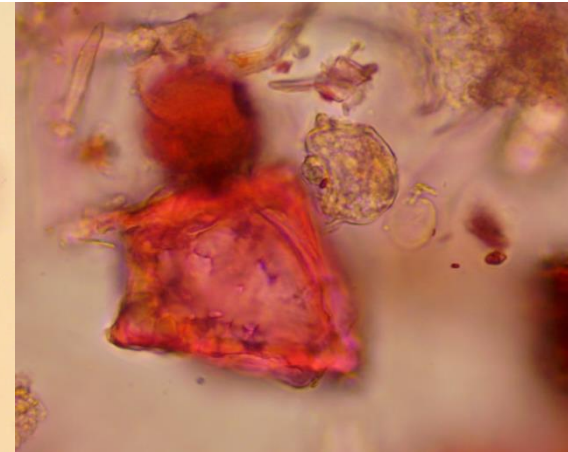
UK-2 pollen grain **Fig 11.** 40x



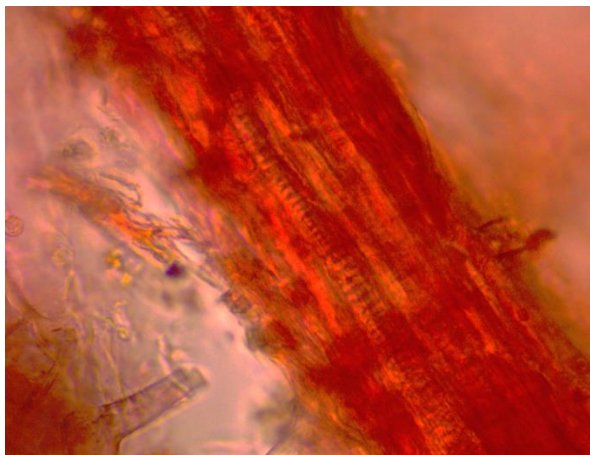
UK-2 glandular trichome **fig 12.** 40x



UK-2 Simple branched trichome **fig 13.** 20x



UK-2 stone cell **fig 14.** 40x



UK-2 fibres and vessels **fig 15** 40x



UK-2 warty trichome **fig 16** 40x

Ustakhuddus Sample-3 (UK-3)



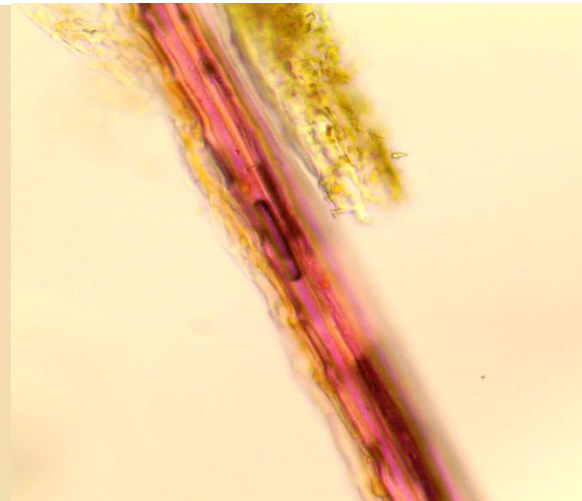
UK-3 Warty trichome **fig 17.** 40x



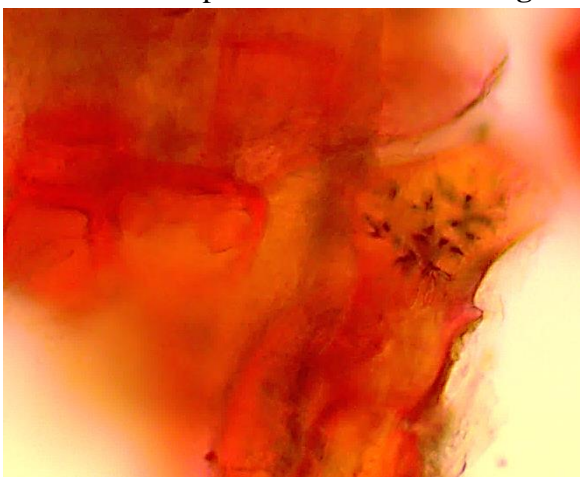
UK-3 pollen grain **fig 18.** 40x



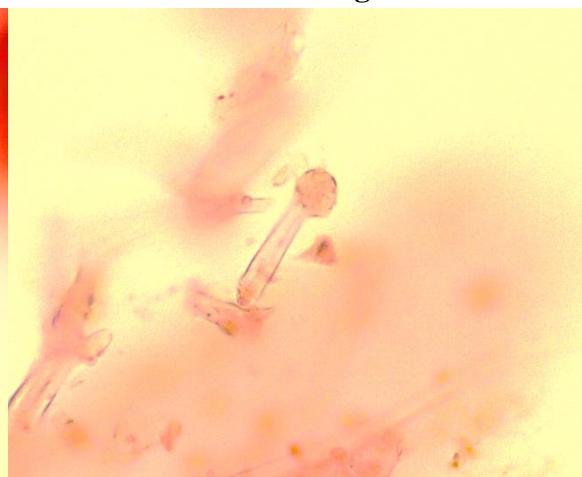
UK-3 Simple branched trichome **fig 19.** 20x



UK-3 fibre **fig 20.** 20x



UK-3 stone cells **fig 21.** 20x



UK-3 glandular trichome **fig 22.** 20x

Physico-Chemical Parameters Table-3

S.No.	Parameters	Ustukhuddus (Sample-1)	Ustukhuddus (Sample-2)	Ustukhuddus (Sample-3)
1.	Total ash	8.92	9.27	9.16
2.	Acid insoluble ash	2.01	1.92	2.08
3.	Water soluble extractive	2.00	2.14	1.89
4.	Loss on drying at 105°C	4.82	4.76	4.92

Discussion and Conclusion

Various parameters like macroscopical characteristics, powder studies, physico-chemical analysis were carried out of three different samples of the plant to establish appropriate data that can aid rapid and easy differentiation among them. In the present study, macroscopic and micro powder study of the three different samples of Ustukhuddus (*Lavandula stoechas* L.) showed no marked difference but in physicochemical parameters, the samples showed slight difference, which provides supporting referential parameters for identification of different samples of Ustukhuddus.

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