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Ustukhuddoos (*Lavandula stoechas* Linn.) - A Brain Scavenger Drug: An Overview



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ABSTRACT

Ustukhuddoos has been used as a healing agent since ancient times. Renowned Unani physicians Jalinus and Desquereus discovered varied medicinal properties of this plant origin drug. They recommended using this drug, especially in cerebral disorders. *Lavandula stoechas* Linn. belongs to *Lamiaceae* / *Labiatae* family. This is an evergreen shrub usually grows to 30 – 100 cm in height. The leaves are 1-4 cm long, greyish and tomentose. The flowers are pink to purple in color appear in late spring and early summer season. In Unani Medicine, it is commonly known as *Ustukhuddoos*. Unani literatures has mentioned many pharmacological actions of this drug such as *Jaroob-e-Dimagh* (brain scavenger), *Daf-e-Sauda* (evacuation of black bile), *Da-fe-Tashannuj* (anti-convulsant), *Mufarraah-e-Qalb- Wa- Dimagh* (exhilarant of heart and brain), *Muqaww-i-Aasab* (nervine tonic) etc, and it is used in several ailments such as *Zof-e-Dimagh*, *Nisyan* (dementia), *Malankholia* (malancholia), *Waja al qalb* (angina pectoris), *Suda-e-Muzmin* (a chronic headache), *Falij* (paralysis), *Laqwa* (facial paralysis) etc. Many scientific studies have been proved that *Ustukhuddoos* is significantly useful in several neurological disorders such as anxiety, depression, convulsions and cerebral ischemia etc. The present review is an attempt to portray this wonder drug *Ustukhuddoos* in the light of scientific studies carried out pertaining to brain and nerves which is rightly coined as the “broom of the brain”.

INTRODUCTION

Ustukhuddoos has been used as a healing agent since antiquity. This is an evergreen shrub usually grows to 30 - 100 cm in tall; leaves are 1- 4 cm long, greyish and tomentose. The flowers appear in late spring and early summer seasons, are pink to purple, produced on spikes 2 cm long at the top of slender, leafless stems 10 - 30 cm long; each flower is subtended by a bract 4 - 8 mm long. [1]

Desqueredus (Dioscorides) (40 – 90 A.D.) recognized laxative and stimulating properties of *Ustukhuddoos* and recommended it to use in the form of decoction in chest diseases. Jalinus (Galen) added this herb to the list of antidotes to use in intoxication. Furthermore, Nero's physicians included this plant origin drug into the formulas of those pills which were used in the treatment of poisoning. Pliny the Elder used Lavender as an emmenagogue in women. In Middle age, it was used in combination with many other herbs such as valerian, wormwood, and fennel etc in England. John Gerard, a physician recommended the use this drug in migraine, epilepsy, panic attack, palpitations, giddiness and Parkinson disease. However, few physicians suggested that the flowers of Lavender are much effective in a headache and all diseases predisposing from cold temperament, therefore it was mixed in all compositions which were made against a chronic headache and apoplexy. [2]

The genus *Lavandula* is an important member of *Lamiaceae / Labiatae* family. Most of the plants of this family are having an aromatic essence. [3] The aromatic property of Lavender is just because of essential oil which is approximately 0.77-1.2% yield. *Lavandula* is derived from Latin word meaning 'violet' refers to the colour of flowers [4] and one more meaning is 'to wash' was most likely lavender widely used in ancient time by the Romans and Libyans, as aroma for the bath. [5] Desqueredus was first time given the species name of *Lavandula stoechas* Linn., pointed out that this shrub is basically grown in Stoechades, a group of Islands on the south coast of Gaul near Massilia (now Hyeres). [2] He also attributed that this herb has laxative and invigorating properties and recommended its use in a tea-like preparation for chest complaints. [2] *Lavandula stoechas* Linn. is widely used in Unani, Ayurveda, Siddha and other folklore medicines for treating several ailments viz; digestive system disorders, neurological disorders, and cardiovascular system disorders etc. This is locally known as *Ustukhuddoos* in the Subcontinent of Arab and Mediterranean Coasts to Asia Minor. In Spain, it is well known as 'Romero Santo' which means sacred rosemary [3]. In Unani Medicine, this very popular drug is also called as '*Jaroob-e-Dimagh*' (broom of

brain) which itself showed the main function of this unique drug. [6] Jalinus (129– 200 A.D.) was mixed this shrub into the recipes of Tiryaqiyat (antidotes) and served to patients who had poisoned by snakes, insects or drugs. Ibn Sina (980 – 1037 A.D.) also described the morphological characters, temperament and medicinal uses of *Ustukhuddoos* in the second volume of *Al-Qanoon fi al Tib*. [7] A product containing Lavender imported from other countries to Pakistan is used by traditional healers for various diseases of the central nervous system such as epilepsy and migraine. [8]

Scientific classification

Kingdom	: Plantae
Division	: Magnoliophyta
Class	: Magnoliopsida
Order	: Lamiales
Family	: <i>Lamiaceae/ Labiatae</i>
Genus	: <i>Lavandula</i>
Species	: <i>L. stoechas</i>
Binomial name	: <i>Lavandula stoechas</i> Linn. [9]

Mutradefat (Vernacular names)

Arabic: Aans-ul-Arwah, Mumsik-ul-Arwah [10, 11, 12]

Unani: Hafiz-ul-Arwah

Urdu: Ustukhuddus [10, 11]

Persian: Shahsafram

Siryani: Sanjawis

Bengali: Tantana Stoechadas [7, 10, 11]

English: Arabian or French Lavender

French: Stoechas Arabique

Gujarati: Lavandara-na-phula

Hindi: Dharu, Alphagandharu, Ustukhuddusa [7, 10, 11, 12]

Marathi: Alphajan

Morphological description of *Ustukhuddoos* as mentioned in Unani classical literature:

This is a shrub which is approximately 1 feet of tall having many branches of stems. Stems are having numerous blue-white scented flowers. Taste of this shrub is slightly bitter. Seeds are small with a concave in shape. [13] Ibn Betar stated that all the parts of this plant are having *qabiz* (astringent) action. He again pointed out that the fresh plant of *Ustukhuddoos* which colour is khaki has bitter in taste also. [14]

***Mizaj* (Temperament):** Hot 1° and Dry 2° [7, 13, 15]

***Ajza-e-Mustamla* (Parts used):** Whole plant, flowers, Essential oil.

***Miqdar-e- Khurak* (Dosage):** 7 to 17 gm.

***Mazarrat* (Side effects):** The patients who have the bilious temperament, if use *Ustukhuddoos* for a long duration may produce irritability, nausea, and vomiting. [14]

***Musleh* (Corrective):** *Katira* and *Sikanjabeen* are two correctives of *Ustukhuddoos* mentioned in classical texts.

***Badal* (Substitute):** The classical literature of Unani Medicine mentioned *Farasiyoon*, *Aftimoon*, and *Badranjboya* as a substitute of *Ustukhuddoos*.

Pharmacological actions and therapeutic Uses of *Ustukhuddoos*

Ustukhuddoos is having many pharmacological actions such as *Jaroob-e-Dimagh* (broom of brain), *Muqaww-i-Dimagh* (Brain tonic), *Munaqq-i-Sauda* (purifier of black bile), *Muqaww-i-Asab* (nervine tonic), *Munzij-e-balgham va Sauda* (conctive of phlegm & black bile) *Mushil-e-Balgham* (phlegmagogue), *Mufatteh sudad* (deobstruent), *Mulattif* (demulcent), *Muhallil* (resolvent), *Jali* (detergent), *Daf-e-Ta'ffun* (antiseptic) and *Habis* (styptic) etc. This drug is used in many ailments such as *Sara* (epilepsy), *Malenkholia* (Melancholia), *Sakta* (brain stroke), *Falij* (paralysis), *Laqwa* (facial palsy). [6,13,14,16,17,18] This is also used as good stimulant, general carminative, diaphoretic, expectorant, antispasmodic and emmenagouge in certain other bodily system disorders viz; musculoskeletal disorders,

digestive disorders, respiratory disorders and urological disorders etc. [7,10] The decoction of *Ustukhuddoos* gives relief from neurological disorders including Sara (epilepsy) and Sakta (brain stroke) and chest pain. Ibn Sina has stated in *Advia Qalbia* that *Ustukhuddoos* has peculiar property to remove black bile especially from brain. [13] Ibn Betar says in this regards that prolong eating of *Ustukhuddoos* expels black bile through stool and cure epilepsy and melancholia. He again pointed out that *Ustukhuddoos* is a very special purgative drug to remove excess black bile from heart and brain. This drug is removed excessive black bile from pneuma also. Hence, it is considered as refrigerant and cardioprotective. [14]

Therapeutic Uses of Compound formulations contained with *Ustukhuddoos*

Ustukhuddoos is the chief ingredient of some Unani formulations which are being used mainly in the treatment of neurological disorders such as *Zof-e-Dimagh*, *Suda-e-Muzmin* (chronic headache), *Sara* (epilepsy), *Tashannuj-e-Azlat* (convulsion), Melancholia, *Laqwa* (facial paralysis) and other *Saudawi Amraz-e-Dimagh* (melancholic diseases of brain) etc. The major compound formulations which are mentioned in Unani Pharmacopoeias are of followings; *Itrifal Ustukhuddus*, *Itrifal Sanai*, *Itrifal Ghududi*, *Itrifal Muqaww-i-Dimagh* and [19,20,21,22] *Majoon Najah* etc. [15]

Chemical Constituents

The leaves of *Lavandula stoechas* Linn. contains polyphenols, apigenin-7-O-beta-D-glucoside, luteolin and its 7-O-beta-D-glucoside, 7-O-beta-D-glucuronide, rosmarinic acid, and 6-O-caffeoyl glucose. [23]

The volatile oil is containing linalyl acetate, linalool fenchone, pinocarvyl acetate, camphor, eucalyptol myrthenol, β -sitosterol, ursolic acid, acetylated glucoside of luteolin, flavonoids, steroids, terpenes, resins, inorganic substances as aluminium, calcium, iron, magnesium, potassium and strontium [24, 25, 26, 27]. The major components of lavender oil were identified as 51% linalyl acetate and 35% linalool measured by gas chromatography and gas chromatography-linked Fourier Transform Infrared analysis. [28]

Scientific Studies:

Neuroprotective activity:

A study has been reported that lavender oil at the dose level of 50, 100 and 200 mg/ kg body weight in mice showed reperfusion of cerebral tissues in cases of induced focal necrosis of cerebral tissues of mice. However, the result was significant at the dose level of 200 mg/ kg body weight. Neuroprotective activity of lavender oil may be attributed to inhibition of protein oxidation, lipid peroxidation, augmentation in endogenous antioxidant defence and reduction in mitochondria generated reactive oxygen species (ROS). [29]

Another study reported that inhaled lavender oil is significantly enhancing memory in scopolamine induced dementia in rats. [30] Hritcu L *et al*, also reported that inhalation of lavender oil has showed significant improvement in memory power on scopolamine induced spatial memory impairment in laboratory rats. [31]

A study has been revealed that lavender oil at the dose level of 100, 200 and 400 mg/ kg body weight by intra peritoneal route (ip) is significantly reduced cerebral oedema in cases of brain stroke in experimental rats. The results indicated that lavender oil has neuroprotective activity against cerebral ischemia and alleviated neurological functions in rats, and the mechanism may be related to augmentation in endogenous antioxidant defence, inhibiting oxidative stress and increasing vascular endothelial growth factor in the rats' brain. [32]

Antioxidant activity

Malik *et al*, has been reported that essential oil of *Ustukhuddoos* exhibits antioxidant activity in the presence of six active chemical constituents which were identified as linalyl acetate, linalool, 1-8 cineole, γ -terpinene, and camphor. [33] Methanolic extract and essential oil of *Lavandula stoechas* Linn. showed significant antioxidant activities in experimental animals. Although, the level of antioxidant property is varied according to the nature of extracts.

Anticonvulsant activity

It is reported that an aqueous methanolic extract of flowers of *Lavandulla Stoechas* at the dose level of 600 mg/ kg body weight showed significantly reduced the severity and increased the latency of convulsions induced by pentylenetetrazole in rats. [34] It is claimed that linalool is one of the major components of lavender oil which is responsible for

inhibiting the convulsions in experimental animals. A clinical study reported that inhalation of lavender oil has significant anticonvulsant effects in elderly patients. [35]

Anxiolytic effect

Several animal studies have been proved that lavender oil exhibits anxiolytic effects. A comparative anxiolytic study has been carried out in rats and results were found that lavender oil has a significant anxiolytic effect than chlordiazepoxide in experimental animals. Another anxiolytic study of lavender oil was compared with diazepam in elevated plus maze test in the Mongolian gerbil and results were found highly significant. [28] A clinical study reported that anxiolytic effect of lavender oil was found superior than placebo in 221 patients suffering from anxiety disorder. [28]

Some Other Studies

Various animal studies suggest that *Lavandulla steachas* Linn. has sedative and analgesic effects. Some other studies reported that *L. Stoechas* exhibit Local anaesthetic effects, both *in-vivo* and *in-vitro* animal experiments. [36]

Clinical studies

Kespar S *et al*, investigated the efficacy of oral lavender oil preparation at the dose of 80mg/day body weight, in patients who have a subsyndromal anxiety disorder and generalized anxiety disorders and results were found to be highly significant. Another study revealed that lavender oil improved associated symptoms such as restlessness, disturbed sleep and somatic complaints in cases of anxiety disorders and had a beneficial influence on general well-being and quality of life. [37, 38] Rizwan *et al*, reported that the powder of *Ustukhuddoos* is much more effective in sinusitis. [39]

A clinical study reported that local application of lavender oil is significantly improved in agitated behavior in dementia. [40] Another clinical study showed that inhalation of lavender essential oil may be an effective and safe treatment modality in acute management of migraine headaches when it compared with a placebo-controlled clinical trial. [41]

CONCLUSION

Ustukhuddoos has been extensively used in the Unani system of medicine since time immemorial for various neurological disorders such as epilepsy, paralysis, dementia,

amnesia, migraine, melancholia, anxiety and convulsions etc. This drug is also used in other bodily system disorders such as respiratory system disorders, digestive system disorders and urogenital system disorders etc. *Ustukhuddoos* belongs to *Lamiaceae / Labiatae* family. It is a scented shrub usually grows to 30 – 100 cm in height; flowers appear in late spring and early summer seasons. Since ancient time many Unani physicians claim its wonder effect in neuro-cerebral disorders. Their claim regarding *Ustukhuddoos* as a brain scavenger amply testifies the neuroprotective nature of the herb which is corroborated by various scientific studies cited in this article. The wisdom of the physicians has once again been vindicated in the light of the above studies. More pre-clinical clinical studies must be carried out to further strengthen the validity of this unique drug.

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