

Ustukhuddus (*Lavandula stoechas* L.): A Boon for the Management of Neuropsychiatric Disorders in Perspective of Unani Medicine-A Review

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Abstract

Ustukhuddus (*Lavandula stoechas* L.) is one of the most important aromatic plant of the family *Lamiaceae*. 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 attributes to its bioactive compounds present in it like, glycosides, phenols, steroids, terpenes etc. This review gives an account of the current knowledge on the phytochemistry, and pharmacological actions along with its uses in the perspective of Unani System of Medicine.

Keywords: Ustukhuddus; *Lavandula stoechas* L.; Insomnia; Glycosides; Steroids; Unani System of Medicine

Introduction

Ustukhuddus (*Lavandula stoechas* L.) is one of the most important plant of the family *Lamiaceae*. It is an aromatic herb and its leaves resemble *Sa'tar Farsi* (*Zataria multiflora*), but thinner and longer in comparison. The branches resemble *Cuscuta reflexa* [1]. Flowers are greyish blue in colour, found in clusters and smell like camphor. Taste is bitter [1]. 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 [1-5]. 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 [6]. 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. This review provides a comprehensive summary of the plant according to Unani medicine and its phytochemical, pharmacological, and biological activities.

Vernacular names

- Arabic: Anasul Arwah [7,8], Hafizul Arwah, Mawqaful Arwah, Alfajan, Geyah-i-Jalinus, Mumsik al-Arwah, Ustukhuddus [2,3,7,8]; Zaram, Zohr al-Zaram [3]
- Bengali: Tantana [3]
- English: Arabian or French Lavender, StoeCADOS [8,9]
- Gujarati: Lavandarana phula
- Hindi: Dhuru, Tantana, [1,7,8] Alphagandharu, Ustukhuddusa
- Marathi: Alphajan,
- Persian: Jarub-i-Dimagh, Ustukhuddus [7]
- Syrian: Sanjivas, Shahe Safram Romi [3,8], Sakhawis
- Urdu: Ustukhuddus

Habitat and distribution

The plant is found in Mediterranean region and to Constantinople to Asia Minor. It is also found in Arab, Spain, Italy, India and Pakistan. In India it grows in Himalaya and Kashmir. Dried plant and flowers are imported to Mumbai from Persian Gulf. It is found in Canaries, Portugal, and eastwards throughout the Mediterranean region to Constantinople and Asia Minor [10]. The plant cultivated in Afghanistan and Peshawar is considered best in quality [11]. According to Najmul Ghani, Ustukhuddus which is cultivated in Hijaz (Arab) and Rome is more potent [2].

Botanical description

Lavandula stoechas L. belongs to the family *Lamiaceae*. It is a perennial shrub up to 90 cm, grey-tomentose, entire and sessile with somewhat revolute margins; flowers dark purple, about 4 mm, long and dense short peduncled spikes with terminal tuft of large purple bracts. Flowering occurs in June-July, which is situated in the axils of downy, heart shaped bracts [12].

Scientific classification [13]

Kingdom: Plantae
 Division: Magnoliophyta
 Class: Magnoliopsida
 Order: Lamiales
 Family: *Lamiaceae/Labiatae*

Genus: *Lavandula*

Description of drug in unani literature

Ustukhuddus is a Unani drug and was known to Unani physicians since long time. Dioscorides in 1st Century AD has described it first in his book "De Materia Medica". The name of the genus is given from the word 'Lavare' means 'to wash', as it was used to wash the body and clothes in ancient Greek and Rome [14]. The specific name is taken from 'Stoechades', a group of islands on the south coast of the Marseilles, where it grows abundantly [8]. The plant grows in Rabi (spring) season in wet soil. The plant attains a height up to one and half feet [3]. The stem is green having rough surface and half meter long; leaves are bluish white with something yellow and red color, with hair on the dorsum, and looks like Sa'tar (*Zataria multiflora*), but lesser in breadth and more in length; flowers appear in peduncle spikes, tastes bitter, having sharp essence like camphor [3,7] which produce sneezing on smell; seeds are blackish yellow present in bunches on upper side, looking just like Rayee (*Brassica nigra*) but slightly flattened (Figure 2), having fragrance like camphor and bitter in taste. Grey colored and slight bitter in taste with bit pungency is rated best of quality. The parts used for medicinal purpose include leaves and flowers of *Lavandula stoechas* L [3,7]. Another species is also mentioned in Unani literature with the name of Khuzama (*Lavandula officinalis*) [2,15], that is commonly cultivated for its volatile oil. In India, one species namely *Prunella vulgaris* L. [9] found in Kashmir is used as substitute of Ustukhuddus in the valley. The plant has been credited with cephalic virtue and called as "Jarub-i-Dimagh" which means broom of the brain [7]. It is called so because it sweeps away all phlegmatic impurities, removes obstructions, strengthens its power of expelling waste crudities and improves the intellectual capacity. Its medicinal values were well described by Jalinus (Galen 131 AD), that is why, it is also known as Geyah-i-Jalinus (Galenical herb). New and greyish colored *Lavandula* is considered best for therapeutic uses [2-5,7,8].

Ajza-i-Musta'mala (parts used):

Leaves, flowers, and whole plant (Figure 1) [2].

Mizaj (temperament)

Hot 1st and dry in 2nd degree [1,2], According to Ibn Masoya it is hot and dry in 2nd degree [8].

Figure 1: Flowers of Ustukhuddus.

Figure 2: Seeds of *L. stoechas* L.

Af'al (pharmacological actions)

Flowers and leaves are used for the treatment of various disorders, especially neuropsychiatric disorders, due to its Muhallil

(resolvent), Mulattif (demulcent), Mundij (concoctive), Muqawwi (tonic), Munaqqi-i-Dimagh (purifier of brain), Muqawwi-i-A'sab (nervine tonic), Munawwim (sedative), Mufattih-i-Sudad (deobstruent), Mushil-i-Balgham (phlegmagogue), Mushil-i-Sawda (melanagogue), Muharrik-i-A'sab (nerve stimulant), Dafi-i-Tashannuj (anticonvulsant), Muqawwi-i-Ruh (strengthen of innate heat) and Dafi-i-Ta'affun (antiseptic) and Muqawwi-i-Alat-i-Bawl (tonic to excretory system) properties. It also used for its Habis (styptic), Musakkin-i-A'sab (nerve sedative), Qabid Khafif (mild astringent), Jali (detergent), Kasir-i-reyah (carminative), Muqawwi-i-Mi'da (stomachic), Muqawwi-i-Qalb (cardiac tonic), Mufarrih Qalb (exhilarant), Muqawwi-i-Badan (general tonic) and Taryaq (antidote) properties. Oil-possesses Muhammir (rubefacient), Dafi' jarasim (antimicrobial) antiseptic activities [1-3,7-9,16].

Therapeutic uses

In Unani System of Medicine the flowers and leaves are used commonly for the treatment of Amraz-i-Dimagh and A'sab (diseases of nerve and brain) such as Nazla-i-Sard (cold catarrh), Suda' (headache), Nasiyan (amnesia), Sar' (epilepsy), Malankhūliyā (melancholia), Waswas sawdawi (anxiety), Junūn (mania), Jumūd (cataplexy), Fālij (hemiplegia), Laqwa (facial paralysis), Ra'sha (chorea), Sadr (giddiness), Dawar (vertigo), Ikhtilaj (trembling), Tashannuj Imtila'i (convulsion), Khadar (numbness), Iltihab-i-Tajawif-i-Anaf (sinusitis), etc. It relieves sprains, Waj' al-A'sab (neuralgia) and Waj' al-Mafasil (rheumatism). It is also useful for Dama (asthma), Su'āl (cough) Warm-i-Jigar Sard (fatty liver), and Istisqa (ascites). Ibn Sina (Avicenna) in his famous treatise, "Advia Qalbia" described its efficacy in removing the Sawda and Balgham (black bile and phlegm) from brain, hence called as "Jarub-i-Dimagh" (broom of brain) [1-3,9,15,16]

Tarkeeb iste'mal (mode of administration):

Amrad-i-Ras wa A'sab (diseases of brain and nerve):

Sar'a (epilepsy)

It is taken as Saoot (nasal drop) along with honey to evacuate the morbid matters from brain [8]. Continuous use of the plant along with Aqir Qirha (*Anacyclus pyrethrum* DC.), and Sikanjabeen is effective for Sar'(epilepsy). Along with Shahme Hanzal (*Citrus colycinthis*), Ustukhuddus can be repeatedly used every year to cure Sara Balghami and Sawdawi. A Saoot (nasal drop) of Joshanda Ustukhuddus (decoction) mixed with Maul Asal (honey water) is used to treat the same ailment. A fumigation of Ustukhuddus is

given in Istirkha (flaccidity). A *Zimad* (plaster) of Ustukhuddus is used on head to treat Nasiyan and Jamood. Joshanda Ustukhuddus (decoction) is very effective in Waja al-A'sab (neuralgic pain). 3 ½ g of Ustukhuddus along with Ayaraj Fiqra (aloe) 3 ½ g is taken for 35 days in the management of Ra'sha (chorea) [3]. The powder of Ustukhuddus (*Lavandula stoechas* L), Filfil Seyah (*Piper nigrum*) and Kishniz Khusk (*Coriandrum sativum*) is used early in the morning to treat Suda-i-Nisfi (migraine) [17], and Sar' (epilepsy), the same is also Mujarrab (tested) for Du'f-i-Basr (poor eye vision) [8]. It is applied on paralyzed limbs to stimulate the nerves. In the Palestinian tradition, the decoction of the aerial part of lavender is used to treat migraine and epilepsy [18]. In case of Taz'za-e-Dimaghi (concussion) it is useful, if taken with Maul Asal [8]. It also cures Ra'sha-i-Dimaghi that occurs due to loud voice. Fresh Sharbat Ustukhuddus with lemon syrup is useful to strengthen the memory [3].

Amraz-i-Sadr wa Reya (diseases of lung and chest)

The decoction of Ustukhuddus is used to ease neuralgic and musculoskeletal pain of ribs [1] its decoction is used to cure chest pain which effects like Zufa (*Hyssopus officinalis*) [8]. Joshanda Ustukhuddus (decoction) is very effective in chest pain and cough [3].

Amraz-i-Nizam-i-Bawl (diseases of Urinary System)

According to ethnobotanical and phytopharmacological studies, *Lavandula stoechas* is used in Morocco to treat nephrotic syndrome, works as an antispasmodic and anti-inflammatory agent, to reduce pain and inflammation [19,20].

Amrad-i-Mafasil (Musculoskeletal and joint diseases)

Joshanda Ustukhuddus (decoction) is useful in various joint pain [3]. A Gulqand of Lavender is prepared in spring season and used for removing Khilt Sawda to obtain its Mufarrih (exhilarant) effect [8].

Amrad-i-Nizam-i-Hazm (diseases of GIT)

Two part Ustukhuddus and one part Post Beekh-i-Kibr (*Capparis spinosa* Bark) mixed with honey is taken to remove coldness of stomach and all morbid matters causing discomfort in stomach [8] and is also useful in haemorrhoids [3]. Its decoction made along with Sa'tar (*Zataria multiflora*) and Tukm Karafs (*Apium graveolens*) is taken with Mushilat (purgatives), it effects without causing spasm in the stomach [8]. Its decoction and infusion is useful in

Warm-i-Jigar Barid (fatty liver) and Istisqa (ascites). It is also used to evacuate morbid matter from spleen and kidney [3].

Mazarrat (adverse effect)

It may cause vomiting or anxiety, and is harmful for people having Mirra Safra (hot temperament) because it possesses Muwallid-i-Safra (cholagogue) property. It is also harmful for lungs, if taken in excess quantity [2,3,8,15].

Musleh (corrective)

Sharbat-i-Limun (syrup of lemon) [7] Katira (gum tragacantha), Sikanjabeen (compound preparation of honey and vinegar) are used as corrective to counter its adverse effects [2,3,8].

Badal (substitutes)

Aftimoon (*Cuscuta reflexa*) and Badranjboya (*Melissa officinalis*) are used as substitute for *Tanqiya Dimagh* and Frāsiyūn (*Morru-bium vulgare* L.) in case of *asthma*. Gul-i-Banafsha (*Viola odorata*) is also a substitute for Ustukhuddus [2,3,7,8].

Miqdar (Dose)

Powder 1-3 gm, decoction 5-7 gm. According to Razes, its dose is 7-10 gm and is better to use with Sikanjabeen [1-3,7,8].

Murakkabat (Compound Formulations)

Itrifal Ustukhuddus, Ma'jun Azaraqi, Ma'jun Najah, Taryaq Nazla, etc.

Chemical constituents

It contains bioactive compounds like, glycosides, phenols, steroids, terpenes and also organic substances such as carbohydrates, resins, etc. The leaves contain polyphenols, apigenin-7-O-beta-D-glucoside, luteolin and its 7-O-beta-D-glucoside, and 7-Obeta-D-glucuronide, rosmarinic acid, and 6-O-caffeoyl glucose. In the essential oil, there are 51 compounds have been isolated, the major ones being fenchon (30.85), pinocarveyl acetate (10.2), camphor (9.58), eucalyptol (8.12) and myrtenol (4.65%) determined as major components; aerial parts of the plant contain volatile oil, oleanolic, ursolic and vergatic acid, beta-sitosterol, alpha-amyrin and its acetate, lupeol, erythrodiol, luteolin, acacetin and vitexin [9,28,29]. Inorganic substances as calcium, iron, magnesium, aluminum, potassium and strontium are also present. The ethanolic extract of whole plant of *Lavandula stoechas* L. was reported to

S. No.	Name of compound formulation	Dosage and mode of administration	Indication
01	Arq-e-Maul Laham Ambari ba Nuskha Kalan [21]	25 ml	Treats Weakness, acts as General body tonic, increases weight
02	Ayarij Loghazia [22]	5-10g	Treats Epilepsy, paralysis, bell's palsy, filariasis, leukoderma, leprosy, sciatica, gout, scrofula, arthralgia
03	Habb-e -Aftimoon [23]	5 to 10 g	Cleanser of brain, laxative and used for anxiety and melancholia
04	Habb-e -Nuzul-ul-Ma [23]	5 to 10 g.	Deobstruent, cleanser of brain and useful to enhance vision
05	Habb-e -Sara Khas [25]	One pill twice a day	Nerve and brain tonic and useful for epilepsy and infantile convulsion
06	Habb-e -Ustukhuddus [26]	2-5g	Cleanser of brain, and useful in hemiplegia, bell's palsy and flaccidity
07	Itrifal Aftimoon [23]	10 g	Cleanser of brain so used in mania, anxiety and melancholia
08	Itrifal Ghudadi [21]	7-9g	To evacuate morbid matters from stomach and brain
09	Itrifal Haamaan [26]	5-10g	Blood purifier, useful in leukoderma, and Pytriasis

10	Itrifal Kishnizi [21]	7-9g	Headache, treats diseases of ears and eyes, provides strength to digestive system, coryza, cold, constipation and hemorrhoids
11	Itrifal Mushil [23]	15 to 25 g.	Acts as Blood purifier and detergent so used in pytriasis, leukoderma, leprosy and elephantiasis
12	Itrifal Mulayyin [22]	5-10g	Due to nervine tonic effect it is useful in headache, paralysis, bell's palsy, cold and ch. coryza and epilepsy.
13	Itrifal Mundi [24, 21]	10-12g	Disorders of eyes
14	Itrifal Muqawwi -i-Dimagh [26]	5-10g	Cerebral weakness, chronic catarrh
15	Itrifal Ustukhuddus [22, 21]	5-10g	Laxative and used for ch. headache, constipation, cold and coryza, keep hairs black
16	Itrifal Sanai [21]	5-7g	Headache, Melancholia, Constipation
17	Itrifal Zabeeb [23]	Dose: 10 to 15 g.	Deobstruent and useful for epilepsy
18	Khamira Gaozaban Ambari [21]	3-7 g	Cardiac tonic, provides strength to memory, used as General body tonic

19	Ma'jun Azaraqi [21]	2-5g	Useful in Hemiplegia, tremors, osteoarthritis, Gout, Syphilis, and in old people
20	Ma'jun Khadar [21]	5-7g	General body tonic, Brain tonic, treat paraesthesias,
21	Ma'jun Murawwahul Arwah [27,21]	5-7g, 1 g. with Maul-Laham do Aatsha (60 ml) or milk (250 ml).	General tonic, nerve tonic and sexual tonic used In sexual weakness and weakness of vital organs. Tonic for Brain, liver and Digestive System, increase memory,
22	Ma'jun Najah [22, 21]	5-10g 5-12g	Evacuate Melancholic matter, Blood purifier , nerve tonic and used for melancholia, colitis, hysteria
23	Ma'jun Zabeeb [22, 21]	5-10g 5-7g	Being deobstruent used in epilepsy and tremors
24	Qurs Mulayyin [22]	1-2g	Acts as Laxative hence used in constipation, obstructive colitis, chronic headache.
25	Qurs Musakkin [25]	2 tablets once a day	Analgesic, anti-neuralgic, it is useful in body ache, nerve weakness and lethargy
26	Roghan Muqawwi-i-Dimagh [26]	Local application on head	Weakness of brain

27	Sharbat Abresham Sada [21]	24-48 ml	Provide strength to heart and brain, Palpitation
28	Sharbat Ahmad Shahi [21]	24-48 ml	Useful in Melancholia
29	Sharbat Mushil [21]	24-48 ml	Purgative of phlegmatic and melancholic matters and used in constipation
30	Sharbat Ustukhuddus [21]	24-48 ml	Evacuate morbid matter from brain, Dementia
31	Taryaq Nazla [22,21]	5-10g	Antitussive and used in cold, catarrh, cough and headache, chronic sinusitis
32	Safoof lajward [22]	5-10g	Evaquant, laxative, exhilarant, and used for melancholia

Table 1

yield β -sitosterol, ursolic acid and an unidentified triterpenic acid [28,30]. A new acetylated glucoside of luteolin and two flavone glucosides were isolated from *Lavandula stoechas* [31].

Pharmacological studies

Various pharmacological studies on *Lavandula stoechas* L. have reported its several properties such as antibacterial, blood purifying, adaptogenic/antiaging etc.

Anticonvulsant and sedative effect

An aqueous extract of *Lavandula stoechas* L. flowers is found to have anticonvulsant, sedative but not hypnotic, and antispasmodic effects in mice. It additionally prolonged pentobarbital sleeping time in a manner similar to that of diazepam [32]. *L. stoechas* has been found to have hypoglycemic activity [33]. It's has been found to be useful as nocturnal sedative in elderly patients in the form of an air freshener [18,34]. It has also beneficial effects in stress [35]. Inhaling the lavender oil vapors shows anticonvulsive action [36].

For depression, tincture of lavender flower (1: 5 in 50% alcohol), 60 drops per day, has been used for 4 weeks in Western herbal [9].

Anti-ulcer activity

The aqueous extract of *Lavandula stoechas* L. showed significant anti-ulcer activity in ethanol induced gastric ($P < 0.001$) and duodenal ($P < 0.01$) ulcers in albino Wistar rats, when compared with control group [37].

Antimicrobial activity

Antimicrobial Activity of *Lavandula stoechas* oil was determined by Disk Diffusion Method. The essential oil was tested against standard bacterial strains, and showed mild activity mainly against the pathogens *Salmonella enteritidis* and *Escherichia coli*, among which *Staphylococcus aureus* found most sensitive in the dilution of, 1/32 and 1/64 [38].

Conclusion

Ustukhuddus (*Lavandula stoechas* L.) is a very common drug of Unani Medicine used since time immemorial. It is very effective in various nervous disorders, cardiac and liver problems, due to phyto-constituents present in the drug. On the basis of the use of the drug according to classical literature and recent scientific studies it is concluded that Ustukhuddus may play a great role in treating various complicated disorders especially related to brain and heart. In this regard in future, more attention should be paid to isolate, characterize many more phyto-constituents and to evaluate more scientific activities of this miraculous plant.

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