

USTUKHUDDOOS (*LAVANDULA STOECHAS* LINN)-AN IMPORTANT DRUG IN UNANI MEDICINE**Dr. Abdul Nasir^{1*}, Gazala Fatma², Naziya Neshat³ and Mohd Aftab Ahmad⁴**

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ABSTRACT

Ustukhuddoos is named on 'Stoichades' a group of Islands on the south coast of Gaul, where this shrub is basically grown. Scientific name of *Ustukhuddoos* is *Lavandula stoechas* Linn and belong to family 'Lamiaceae'. It is very popular drug and also called "*Jaroob-e-Dimagh*" (broom of brain) in unani medicine, because it remove the black bile from the brain, give strengthens and improves the brain condition. Many of the unani physicians like Galenus, Dioscorides and Ibn Sina have also described in their books about the morphological characters, temperament and medicinal uses of *Ustukhuddoos*. There are a number of pharmacological actions of this drug such as *Munaqqi-e-Dimagh* (Brain purifier), *Dafa-e-Tashannuj* (anti-convulsant), *Mufarraah-e-Qalb- wa- Dimagh* (exhilarant of heart and brain), *Muqawwi-e-Aasab* (nervine tonic) *Dafa-e-Sauda* (evacuation of black bile), *Jaroob-e-Dimagh* (brain scavenger) etc, and it is used in several ailments such as *nisyan* (dementia), *malankholia* (malancholia), *waja-ul-qalb* (angina pectoris), *suda-e-muzmin* (a chronic headache), *faliq* (paralysis), *laqwa* (facial paralysis), *zo'af-e-dimagh*, *sahar* (insomnia), anxiety, depression, *sidr* (Giddiness) etc. This review paper covers the pharmacognostic character, phytochemistry, pharmacological activities and therapeutic approaches of *Ustukhuddoos* (*Lavandula stoechas*) in the perspective of unani literature.

KEYWORDS: *Ustukhuddoos*, *Lavandula stoechas*, *Jaroob-e-Dimagh*.**INTRODUCTION**

Ustukhuddoos is derived from *Stoichades* and named on this group of island (*Stoichades*) on the south coast of Gaul near Massilia (now Hyeres) where it is commonly grown.^[1,2] *Ustukhuddoos* is also a local name of *Lavandula stoechas* in the Subcontinent of Arab and Mediterranean Coasts to Asia Minor. In Western India, it is wrongly named 'Alfazema' and in Spain, it is well known as 'Romero Santo' which means sacred rosemary.^[3] It is very popular drug and also called "*Jaroob-e-Dimagh*" (broom of brain) in unani medicine, because it remove the black bile from the brain, give strengthens and improves the brain condition.^[4] *Lavandula* is derived from Latin word meaning 'violet' refers to the colour of flowers,^[5] and one more meaning is 'to wash' and because lavender was widely used as aroma for the bath in ancient time by the Romans and Libyans.^[6] It was first described by Galenus (Galen) so it is called "Galeenial herb" and mixed this shrub into the

recipes of *Tiryaaqat* (antidotes) and served to patients who had poisoned by snakes, insects or drugs. Dioscorides described it in the book "*Kitabul Hashaiash*". Ibn Sina has also described in his book *Al-Qanoon-fil-Tib* about the morphological characters, temperament and medicinal uses of *Ustukhuddoos*.^[7] Lavender has a long history of medicinal use and is suggested to possess anticonvulsant, antidepressive, anxiolytic, sedative, and calming properties etc.

Scientific name: *Lavandula stoechas* Linn.^[8,9,10]**Family:** Lamiaceae^[8,9,10]**Vernacular names**^[10-16]**English:** *Stoichades***French:** Lavander**Hindi:** Alaphajana Dharu, *Ustukhuddoosa***Urdu:** *Ustukhuddoos*, *Alfaajan***Bengali:** *Tantana***Arabic:** *Anisul Arwah*, *Mumsikul arwah*

Persian: Shahsafram

Habitat

Lavandula is native to the lands surrounding the Mediterranean Sea and southern Europe through northern and eastern Africa and Middle Eastern countries to southwest Asia and southeast India.^[17] It is found in Rabi reason in forests and mountains having wet soils. The plant cultivated in Peshawar and Afghanistan is of the best quality. Qualities of Lavandula, which cultivated in the region of Hejaz and Rome is more persuasive in medicinal value.^[4,10] It includes more than 30 species, dozens of subspecies, and hundreds of hybrids and selected cultivars. The different varieties of this plant range in height from 9 inches to 3 feet.^[17]

Botanical Description^[8,10,18]

Stem

It is multiple in number, length 300 to 600 mm, colour - greyish, branched, square when young, often grow along the ground, then bend upwards, densely hairy with star type hairs.

Leaves

It's Leaves like leaves of Satar (*Zataria multiflora*) but thinner and longer than that. Opposite and paired or clustered at the nodes, fragrant when crushed, Stipules – None, Petiole – None, Blade - Grey-green, parallel sided to oblong, 8-30 mm long by 1.5-10 mm wide, dense short hairs (star type) Edges turned down but with no teeth or lobes.

Flowers

Flowers are dark purple in colour, about 4mm long and in dense short peduncled spikes with terminal tuft of large purple bracts. Bracts: Floral bracts broadly egg shaped, up to 6 mm long by 7 mm wide with 3 shallow lobes. Ovary: Superior, Styles with 2 short lobes, Calyx: 4-6 mm long, tubular, 13 ribbed, dense star hairs, Corolla: Dark purple, 6-8 mm long. Stamens: 4 inside corolla tube, Anthers: one celled, yellow, kidney shaped.



Fig. 1: Flowers of *Ustukhuddoos* (*Lavandula stoechas*).

Fruit

Pale brown, shiny, hairless, triangular nutlet about 2 mm diameter.

A'aza-e-Mustamla (Parts used)

Whole plant, flowers, essential oil^[18]

Mizaj (Temperament)

Hot 1o Dry 2o^[4,7,18,19]

Hot 2o Dry 2o^[4,14]

Hot 2o Dry 3o^[4]

Miqdar-e- Khurak (Dosage)

3gm7,^[18] 7-10gm, better to use with Sikanjbeen.^[7,14]

Mazarrat (Side effects)

Harmful for people of hot and safravi temperament, increases thirst and causes nausea.^[4,14,19]

Musleh (Corrective)

Kateera (*Astragalus gummifer*)^[4,14,18,19] Sikanjabeen^[4,19]

Badal (Substitute)

Akasbel (*Cuscuta reflexa*, Aftimoon)^[4,14,18] Frasiyun (*Marrubium vulgare*)^[4,19]

Murakkabat (Compound Formulations)

Itrifal Ustukhuddoos, Itrifal Sanai, Itrifal Ghududi, Itrifal Muqawwi-e-Dimagh, Murabba Ustukhuddoos, Arqe Ustukhuddoos, Itrifal Mulayyin, Majoon Ustukhuddoos, Majun Khadar, Majun Maurawweh ul-Arwah, Majun Najah, Majun Zabib, Qurs Mulayyin, Sharbat Ustukhuddoos, Sharbat Ahmad Shahi, Sharbat Gaozaban.^[1,3,20-26]

Phytochemical Constituents

There are several chemical constituents which are listed in table 1.^[10,18,27,28,29]

Table 1: Phytochemical Constituents of Ustukhuddoos (*Lavandula stoechas*).

| S. No. | Substances | Constituents |
|--------|---|---|
| 1 | Organic substances | Carbohydrates, glycosides, phenolics, steroids, terpenes and resins |
| 2 | Inorganic substances | Aluminium, calcium, iron, magnesium, potassium and strontium |
| 3 | The leaves | polyphenols, apigenin-7-O-beta-D-glucoside, luteolin and its 7-O-beta-D-glucoside, and its 7-O-beta-D-glucuronide, rosmarinic acid, and 6-O-caffeoyl glucose. ¹² |
| 4 | <i>Lavandula stoechas</i> oil | apinene, camphene, oct-1-en-3-ol, p-cymene, 1,8-cineole + limonene, cis-linalool oxide, fenchone, linalool, a-fenchol, a-campholenol, camphor, borneol, terpinen-4-ol, p-cymen-8-ol ¹³ . |
| 5 | The ethanolic extract of whole plant of <i>L. stoechas</i> Linn | β -sitosterol, ursolic acid and an unidentified triterpenic acid |
| 6 | Essential oil | Fenchone, Pinocaryyl acetate, Camphor, Eucalyptol, Myrthenol |

Pharmacological Actions

Munaqqi-e-Dimagh (Brain purifier), Muhallil (Anti-inflammatory), Mulattif (Demulcent), Muqawwi (Tonic), Dafe Tashannuj (Antispasmodic), Tiryaaq (Antidote), Daafe Ufoonat (Antiseptic), Jaali (Detergent), Muqawwi Aasab (Nervine tonic), Mufatteh Sudad (Deobstruent), Muqawwi Dimagh (Brain tonic), Muqawwi Qalb (Cardio tonic), Mufarreah, Muqawwi Meda (Stomachic), Mushile Balgham wa Safra wa Sauda (Purgative of phlegm, yellow bile and black bile), Antibacterial, Anti-depressive, Munavim (Sedative), Muqawwi Jigar (Hepatoprotective).^[1,4,7,10,14,18,19,26]

Therapeutic Uses

Falij (Hemiplegia), Laqwa (Facial paralysis), Rasha (Tremor), Iltihab Tajaweef-e-Anf (Sinusitis), Nazla Muzmin (Chronic catarrh), Zof-e-Aasab (Neurasthenia), Malikhuliya (Melancholia), Sara (Epilepsy), Rheumatic and neuralgic pains, Suda (Nervous headache), Chest infections, Amraz-e-Kabid (Liver disorders), Amraz-e-Baul (Urinary disorders), Sidr (Giddiness), Nisyan (Dementia), Bawaseer (Haemorrhoids), Istisqa (Ascites), Junoon (Schizophrenia), Khadar (Numbness), Warne Kabid (Hepatomegaly), Depression, Sahar (Insomnia).^[1,4,7,10,14,18,19,26]

Scientific Studies

Neuroprotective activity

Lavender oil has neuroprotective activity against cerebral ischemia and alleviated neurological function in rats, when it was administered at doses of 200 and 400 mg/kg.^[30]

Lavender oil significantly decreased neurological deficit scores, infarct size, and the levels of mitochondria-generated reactive oxygen species and attenuated neuronal damage in focal cerebral ischemia induced by the intraluminal occlusion in mice.^[31] Another study reported that inhaled lavender oil is significantly enhancing memory in scopolamine induced dementia in rats.^[32]

Antioxidant properties

Lavandula stoechas has shown by acting as a chemopreventive agent, providing antioxidant properties, and offering effective protection from free radicals when it was evaluated by using, 2, 2-diphenyl-1-picryl hydrazyl (DPPH) and phosphomolybdenum assay in vitro methods.^[33]

Antimicrobial activity

Essential oil of *Lavandula stoechas* showed highly inhibitory antimicrobial activity when it was evaluated using Broth microdilution (MIC determine the minimum inhibitory concentration) methods, especially on gram positive bacteria and can be used instead of chemical drugs to treat bacterial infections.^[34]

Anticonvulsant activity

Swiss Albino mice of either sex (20–30g) were used for the anticonvulsant activity. Animals were divided into three groups of five mice each. Group 1 served as control (saline 10 ml/kg) and the other two groups were given different doses of the extract (400 and 600 mg/kg; i.p.), 60 min before the subcutaneous injection of pentylene tetrazole (PTZ). Latency of convulsions and lethality during the following 24 h were recorded. These two parameters were compared in treated animals with those of control animals, in order to assess the anticonvulsant activity.^[35]

Antispasmodic activity

Antispasmodic activity of the plant extract was studied in isolated spontaneously contracting rabbit jejunum. The rabbit jejunum exhibits spontaneous rhythmic contractions and, therefore, allows studying the relaxant (spasmolytic) activity directly without the use of an agonist.^[36]

Anxiolytic effect

anxiolytic study of lavender oil was compared with diazepam in elevated plus maze test in the Mongolian gerbil and results were found highly significant.^[37]

Anti-inflammatory activity

Anti-inflammatory activity evaluated by Carrageenan-Induced Rat Paw Edema method. The ethanolic extracts of *Lavandula stoechas* (1000 and 2000 mg/kg, body weight "b.w") inhibited the inflammation induced by carrageenan in rats.^[38] The *Lavandula stoechas* oils significantly protected against the increase of blood glucose as well as the decrease of antioxidant enzyme activities Alloxan induced in rats.^[39]

Hepatoprotective and Nephroprotective activity

Essential oils of *Lavandula stoechas* were evaluated against malathion-induced oxidative stress in young male mice. Treatment abolished all malathion-induced body gain loss, liver and kidney relative weight increase, hemodynamic and metabolic disorders, as well as hepatic and renal oxidative stress, so it is suggested that *L. stoechas* essential oil exerts potential hepato- and nephroprotective effects.^[40]

Antifungal activity

Essential oils tested were effective on the inactivation of *Rhizoctonia solani* and *Fusarium oxysporum* and less effective against *Aspergillus flavus*.^[41]

Clinical Studies**Anxiety**

Alleviation of anxiety and mood improvement were reported in thirty-six patients admitted to an intensive care unit, who received lavender oil (diluted to 1% concentration) aromatherapy.^[42]

Depression

Adjuvant therapy of lavender tincture (1:5 in 50% alcohol; 60 drops/day) and imipramine (100mg/daily) in treatment of forty-eight adult outpatients suffering from mild-to-moderate depression led to a better and earlier improvement. Anticholinergic side effects of imipramine, such as dry mouth and urinary retention, were observed less often when lavender administered with imipramine. These results suggest that lavender is an effective adjuvant therapy in combination with imipramine, resulting in a superior and quicker improvement in depressive symptoms.^[17]

Dementia

A clinical study reported that local application of lavender oil is significantly improved in agitated behavior in dementia.^[43]

Migraine headaches

There is a placebo-controlled clinical trial showed that inhalation of lavender essential oil may be an effective and safe treatment modality in acute management of migraine headaches.^[44]

Chronic sinusitis

A Preliminary clinical trial was conducted on 63 patients of chronic sinusitis and 4.5 grams of *Ustukhuddoos* tablets daily in three divided doses for three weeks

showed complete recovery in 7.93% and improvement in 71.43% of the patients.^[45]

CONCLUSION

Ustukhuddoos (Lavandula stoechas) is an important drug which is being used in unani medicine since ancient time in different ailments like epilepsy, paralysis, dementia, amnesia, migraine, melancholia, anxiety, convulsions, chronic catarrh, liver disorders, urinary disorders. There are several scientific studies and some clinical studies are carried out to explore the pharmacological actions of *Ustukhuddoos (Lavandula stoechas)*. So, more pre-clinical and clinical studies must be carried out to further strengthen the validity of this unique drug. This review may be useful to increase our knowledge regarding pharmacological effects and improve our future experimental and clinical research plans on *Ustukhuddoos (Lavandula stoechas)*.

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CONFLICT OF INTEREST

None

REFERENCES

1. Safiuddin AS. Unani Advia mufrada. 8th Ed. New Delhi: Qaumi Council Barae Farogh Urdu Zaban, 1999; 32-33.
2. <http://medicinalplants.us>.
3. Anonymous, Standardization of Single Drugs of Unani Medicine. New Delhi: CCRUM, 1992; I: 267-71, Part III.86-90), Vol. II, (Part II. 282-89), Vol. III (Part III. 20-25, 79-84).
4. Ghani N. Khazainul Advia, Part III. Lahore: Sheikh Muhammad Basheer & Sons; YNM, 1039-1041.
5. Siddiqui MA, Khalid M, Akhtar J, Siddiqui HH, Badruddeen, Ahmad U et al. *Lavandula Stoechas (Ustukhuddoos)*: A miracle plant. JIPBS, 2016; 3(1): 96-102.
6. Lamnauer D. A Guide to Medicinal Plants in North Africa. (cited from <http://www.uicnmed.org> on 15/0716).
7. Ibn Sina. Al Qanoon fi al Tib. (Urdu translation by Kanturi GH). 2nd Vol. New Delhi. Idara Kitab al Shifa, 2014: 277.
8. Satyavati GV, Gupta AK, Tandon N. Medicinal Plants of India. New Delhi: ICMR, 1987; 21: 36-38, 374-77.
9. Kokkalou E: The Constituents of the Essential Oil from *Lavandula stoechas* growing Wild in Greece. *Planta Medica*, 1988; 54: 58-59.
10. Khare CP. Indian Medicinal Plants: An illustrated dictionary. New Delhi: Springer-Verlag Berlin/Heidelberg, Springer science business media LLC, 2007; 189, 238,239,365,449,652-654.
11. Anonymous. Standardisation of single drugs of unani medicine, Part V. New Delhi: CCRUM,

- Ministry of H & FW, Govt. of India, 1992; 1,4: 98-101.
12. Anonymous. Physicochemical standards of Unani Formulations, Part I. New Delhi: CCRUM, Dept. of AYUSH, Ministry of Health & Family Welfare, Govt. of India, 1986; 202,203,213-215,228,229,232-234.
 13. Nadkarni K. The Indian Materia Medica Vol. 1. Bombay: A.K Nadkarni Publishers, 1936; 280, 482,483, 485, 501,842-843,844-46,1203.
 14. Baitar Ibn. Al Jamiul mufradat ul advia wal aghziya (Urdu translation, Part I). New Delhi: CCRUM; YNM, 54-56, 94-96, 232-233,339-341.
 15. Khan MM. Tohfatul Momineen. Matba Naval Kishore, Lucknow, 1846; 23, 30, 34, 40-41, 45, 50, 56, 65.
 16. Kabeeruddin M. Makhzan al Mufrdat. Publisher & Year of publication not mentioned, 74-75.
 17. Peir Hossein Kouliv, Maryam Khaleghi Ghadiri, Ali Gorji, Lavender and the Nervous System, Evidence-Based Complementary and Alternative Medicine, 2013; 1-10.
 18. Anonymous. Standardisation of single drugs of unani medicine, Part V. New Delhi: CCRUM, Ministry of H & FW, Govt. of India, 1992; 14: 98-101.
 19. Hakeem MA. Bustanul Mufradat. New Delhi: Idara Kitabus Shifa. 2002; 60,67-68, 72,85-86.
 20. Kabeeruddin M. Makhzan al Mufrdat. Publisher & Year of publication not mentioned, 74-75.
 21. Kabiruddin M. Biyaz-e-Kabir Vol. 2. Hyderabad. Hikmat Book Depot, 1935; 3-5.
 22. Anonymous. Qarabadeen-e-Majeedi. Hamdard Dawakhana, 1986; 19: 22, 24, 28.
 23. Anonymous. Unani Pharmacopoeia of India. Part-I, Govt of India, Ministry of Health and Family Welfare, Dept. of AYUSH, New Delhi, 2006; 93: 96.
 24. Usmani MI. Tanqeehul Mufradat, 1st Edition, Famous Offset Press, Delhi, 2008; 222-223.
 25. Kabeeruddin M. Al-Qarabadeen. Central Council for Research in Unani Medicine New Delhi. Ministry of Health & Family Welfare, Govt. of India, 2006; 9: 15, 16.
 26. Usmani MI. Tanqeehul Mufradat, 1st Edition, Famous Offset Press, Delhi, 2008; 222-223.
 27. Bouzouita N, Kachouri F, Hamdi M, & Chaabouni M, Volatile constituents and antimicrobial activity of Lavandula stoechas L. oil from Tunisia: Journal of essential oil research, 2005; 584-586.
 28. Khan MYS: Chemical Examination of Lavandula stoechas Linn. Indian Journal of Pharmaceutical Sciences, 1968; 30: 213. 17.
 29. Kokkalou E: The Constituents of the Essential Oil from Lavandula stoechas growing Wild in Greece. Planta Medica, 1988; 54: 58-59.
 30. <http://plants.usda.gov/java/namesearch>. 25.08.2013.
 31. D. Wang, X. Yuan, T. Liu et al., "Neuroprotective activity of lavender oil on transient focal cerebral ischemia in mice," *Molecules*, 2012; 17(8): 9803-9817.
 32. Hancianu M, Cioanca O, Mihasan M, Hritcu L. Neuroprotective effects of inhaled lavender oil on scopolamine induced dementia via antioxidative activities in rats. *Phytomedicine*, 2013; 20(5): 446-452.
 33. Vakili N, Gorji A: Psychiatry and psychology in medieval Persia. *Journal of Clinical Psychiatry*, 2006; 67(12): 1862-1869.
 34. Sadani S, & Alireza S, Antimicrobial activity of the essential oils of Lavandula stoechas flowers extracted by microwave: *Journal of medicinal plants studies*, 2016; 4(3): 224-228.
 35. Irwin, S., *Animal and Chemical Pharmacological Techniques in Drug Evaluation*. Year Book Medical, Chicago, 1964; 36.
 36. Gilani, A.H., Janbaz, K.H., Lateef, A., Zaman, M., Ca²⁺ channel blocking activity of Artemisia scoparia extract. *Phytotherapy Research*, 1994; 8: 161-165.
 37. Koulivand PH, Ghadiri MK, Gorji A. Lavender and the Nervous System. *Evidence-Based Complementary and Alternative Medicine*, 2013; (Article id 681304): 1-10.
 38. Vakili N, Gorji A: Psychiatry and psychology in medieval Persia. *Journal of Clinical Psychiatry*, 2006; 67(12): 1862-1869.
 39. Sebai H, Selmi S, Tibi K, Souli AA, Gharbi N & Sakly M, Lavender (Lavandula stoechas L.) essential oils attenuate hyperglycemia and protect against oxidative stress in alloxan-induced diabetic rats: *Lipids in Health and Disease*, 2013; 19
 40. Miraj S, Lavandula stoechas L: A systematic review of medicinal and molecular perspectives: *Der Pharmacia Lettre*, 2016; 8(13): 56-58.
 41. Angioni A, Barra A, Coroneno V, & Dessi S, Chemical Composition, Seasonal Variability and Antifungal Activity of Lavandula stoechas L. ssp. stoechas Essential Oils: *Journal of Agricultural and Food Chemistry*, 2006; 54: 4364-4370.
 42. C. Dunn, J. Sleep, and D. Collett, "Sensing an improvement: an experimental study to evaluate the use of aromatherapy, massage and periods of rest in an intensive care unit," *Journal of advanced nursing*, 1995; 21(1): 34-40.
 43. Connor DW, Eppingstall B, Taffe J, Ploeg ESVD. A randomized, controlled cross-over trial of dermally applied lavender (Lavandula angustifolia) oil as a treatment of agitated behaviour in dementia. *Complement Altern Med.*, 2013; 13: 315.
 44. Sasanejad P, Saeedi M, Shoebi A, Gorji A, Abbasi M, Foroughipour M. Lavender essential oil in the treatment of migraine headache: a placebo-controlled clinical trial. *Eur Neurol*, 2012; 67(5): 288-91.
 45. Husain et al., Preliminary report on clinical trial of Ustukhudoos in the treatment of chronic sinusitis, *J. Res. Indian Med. Yoga Homoeop*, 1976; 11(2): 84.