

**SOSAN (*IRIS ENSATA* THUNB.): IT'S TRADITIONAL USES AND
PHARMACOLOGICAL ACTIONS: REVIEW ARTICLE**¹**Dr. Meenu Doni**, ²**Prof. Mohd. Aleemuddin Quamri** and ³**Dr. Mohammad Ilyas Patel**¹MD, Ph.D. Research Scholar Dept. of Moalajat, NIUM, Bengaluru, Karnataka, India.²Professor and HOD Dept. of Amraze JILD wa Tazeeniyat and Incharge Moalajat, NIUM, Bengaluru, Karnataka, India.³Lecturer Dept. of Moalajat, NIUM, Bengaluru, Karnataka, India.***Corresponding Author: Dr. Meenu Doni**

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ABSTRACT

Sosan (*Iris ensata* Thunb.) a member of the family Iridaceae, is native to North-Western Himalaya. The purpose of this article is to highlight the medicinal properties of Sosan based on its temperament and phytoconstituents, as well as to show its potential. This review will look into the mechanism-based understanding of Sosan's activities and therapeutic uses, focusing on Unani medical literature and other diseases described in the Unani system of medicine, as well as phytochemistry, pharmacological, pre-clinical and clinical studies. Sosan was explored in classical Unani literature for its temperament (Mizāj), medicinal properties, and therapeutic uses. Published works available on Pub Med, Science Direct, and Google Scholar were used to compile all the available data regarding its phytochemicals and pharmacological studies. 'The Plant List' was used to verify the scientific names of the plants (www.theplantlist.org). The necessary Unani terminologies were described using the Standard Unani Medical Terminology, which was issued by the Central Council for Research in Unani Medicine in partnership with the WHO. For botanical and English names, The Glossary of Indian Medicinal Plants and different indexed journals were used. Based on the available literature, it can be concluded that *Iris ensata* is a drug that has been effectively utilized in Unani Medicine for centuries to cure a variety of ailments. Its phytopharmacological characteristics have been extensively researched. Still, many potentially bioactive chemicals need to be investigated scientifically, and there are no extensive studies of their biological activity accessible. We recommend future research be focused on its bioactive components and their activities.

KEYWORDS: *Iris ensata* Thunb, *Sosan*, Traditional medicine, Unani medicine.**INTRODUCTION**

The Unani System of Medicine was pioneered in Greece and was developed by Arabs into elaborated medical science based on the frame work of Buqrat (Hippocrates) and Jalinoos teachings (Galen). Unani Medicine has been referred to as Greco-Arab Medicine from that period. This approach is based on Hippocrates theory of four humors: blood, phlegm, yellow bile, and black bile, as well as the four qualities of the human body states: Ḥār/hot, Bārid/cold, Raṭab/moist, and Yābis/dry. The Greek theories were translated into seven principles (Umūr Ṭabī'iyya) by Arabian physicians, which included element (Arkān), temperament (Mizāj), humours (Akhlāt), organs (A'ḍā'), spirit (Arwāḥ), faculties (Quwā), and functions (Af'āl). These principles, according to this concept, are responsible for the body's constitution, health, and pathological conditions.^[1,2]

Iris ensata is a tree that grows in North-Western Himalaya at 1500-2700 mtr and from Kashmir to Himachal Pradesh. It is, often, grown in gardens. Its

flowers have fragrance. Generally, its root is used, also called as *Irsa*.^[3-5] This plant is a perennial herb, root stock stout, creeping; stems tufted up to 2 feet high; leaves linear; flowers iliac or white; spathe 3-4 inches long; capsule 6 ribbed, and beaked.^[3] The manuscript's main objective is to explore the *Iris ensata* for its medicinal efficacy in various disorders in the light of its temperament and phytoconstituents. Moreover, no such type of review is available that focuses on the medicinal value in light of the Unani concept. This manuscript also highlights various tested prescriptions suggested by eminent Unani physicians and numerous scientific studies conducted on this drug. For a systematic and parallel presentation of this manuscript, it has been divided into two parts. One is the description of *Iris ensata* in Unani and other ancient literature and other concerns scientific works.

A manual literature survey of classical Unani texts was conducted to collect the information available on "Sosan(*Iris ensata* Thunb.)" for its temperament (Mizāj),

pharmacological actions, mechanism of action, and therapeutic uses. Besides, a comprehensive search of electronic databases like Pub Med, Google Scholar, and Science Direct, was carried out to collect all the available information regarding its phytochemical, physicochemical, and pharmacological studies. Urdu translation of classical books such as Al Jami ul Mufradat Al Advia Wal Aghzia of Ibn al Baitar (1197-1248 AD), Maghzinul mufradat of Hakim Kabeeruddin, and Khazainul Adwiya of Najmul Ghani, (19th century) and Ilmul Advia Nafisi of Mohammad Kabeeruddin etc.

Standard Unani Medical Terminology published by Central Council for Research in Unani Medicine in collaboration with the World Health Organization was used to describe the appropriate Unani terminologies. Glossary of Indian Medicinal Plants and different indexed journals were consulted for botanical and English names. The keywords used were Sosan, traditional medicine, Unani medicine, and *Iris ensata* Thunb. All the old traditional terms were written in Urdu along with equivalent terms in English.

Description of *Iris ensata* (Sosan) in Unani and other ancient literature



Figure No. 1: "Root of Sosan (*Iris ensata* Thunb.)".

Vernacular Names

English: Orris, Iridis Rhizome, German Iris^[4], **Ayurvedic:** Paarseeka Vachaa, Haimavati, Shveta Vachaa (also considered)^[4], **Unani:** Irsaa, Sosan, Iris^[4], Qursan, tulinu, kasorus, kasirus^[6], **Folk:** Marjal, Unarjal (Kashmir).^[3,4]

Botanical Name: *Iris ensata* Thunb.

Habitat: Western Himalayas.^[3,4]

Taxonomical Classification^[4]

Kingdom: Plantae, **Order:** Asparagales, **Family:** Iridaceae, **Subfamily:** Iridoidea.

Description in Unani Literature: More than one dozen species are found in India and a few exotic varieties are also cultivated for ornamental purposes. The root of Sosan is dried, dark brown, small pieces of different shapes, but usually they are elongated having transverse wrinkles. The inner surface is light brown. The odour is pungent and the taste is slightly bitter and aromatic.^[7,8]

Temperament (Mizāj): is one of the Unani system of medicine's most fundamental principles, and the temperament of drugs has remained crucial to the notion of pharmacological action. A person's temperament and the drug's temperament serve as a conceptual framework for properly using the drug, predicting its effect on the body, and serving as a drug potency indicator. The temperament of a drug is described in terms of the nature and intensity of the deviation in the bodily state caused by drug action that occurs after the drug has been administered.^[9-11] For example, a medicine that is hot or cold in nature tends to raise or decrease the state connected to hot temperament or generate such effects in the body, which is attributable to increased heat or

coldness correspondingly, when administered. In terms of their effect on a moderate human body, the Unani physicians have divided the medications into four groups. In order to increase the strength of the effect, a medicine can be hot, cold, wet, or dry in 1, 2, 3, or 4 degrees.^[2,9,10,12]

Temperament of Sosan is Hār Yābis (Hot and Dry)^[5,7,13]

Action and uses (Afāl and Mawaqe istemal)

It has several pharmacological properties such as.

- **Mullaṭīf** (Demulcent): an agent which liquefies thick and viscous matter.^[14]
- **Muḥallil** (Resolvent): an agent which resolves thick and viscous humours, thus resolve the inflammation and reduce swelling.^[5,6,13,14]
- **Mulayyin** (laxative): An agent which relieves the constipation, smoothly.^[6,14]
- **Mufattiḥ** (Deobstruent): an agent which dilates the blood vessels or dissolves thick/viscous matter to remove the obstruction.^[14]
- **Musakhkhin** (calorific): An agent which, increases the metabolism of the body due to its hot temperament.^[5,14]
- **Musakkin** (analgesic): An agent which relieves the pain.^[5]
- **Jāli** (Detergent): an agent which clean the sticky matter from skin surface.^[5,6,13,14]
- **Tiryāq Samūm** (Antidote): It refers to any substance or drug that neutralizes a poison or counteracts its effects.^[5,13,14]
- **Munaffith-i Balgham** (Expectorant): An agent which facilitates expectoration of phlegm.^[4,5,7,13]
- **Mudirr-i-Bawl wa Ḥayḍ** (Diuretic and Emmenagogue): an agent that increases the

excretion of urine^[13,15] and which induce menstrual bleeding.^[13]

- *Mujaffif* (Desiccant): an agent which constricts blood vessels and decreases exudation from them.^[14]

Traditional Uses

- Sosan is used to treat Pneumonia^[8]; Cough; Asthma, and Diphtheria.^[4-7,13,14]
- It is used in Paralysis; Istarkha, and Tashannuj^[5,7], Its *Zimād* (paste) is used in the treatment of chronic pain.^[5-7,14]
- Its decoction mixed with Sirka (vinegar) is useful in tinnitus as ear-drop^[7], the decoction of Sosan mixed with olive oil is effective in the hearing loss.^[7,13]
- Sosan is used in Amenorrhea and other uterine diseases.^[5-7,14] It is used in Skin diseases like Kalaf (Melasma), Namash (Nevus) etc.^[5,7,14]
- It relieves headache when applied as paste.^[7,13]
- *Zimād* of its root relieves toothache.^[6,7]
- It enhances memory power, hence used in dementia^[7] it is used in the treatment of Jaundice and hemorrhoids.^[6]
- Its decoction as enema has beneficial effect in sciatica.^[5,7]
- It act as an Antidote for snake and other animal venoms.^[6,12,14,15]
- It is beneficial in dribbling of urine and diarrhea.^[6]

Taste: Bitter^[7,8]

Phytochemical Constituents: Glycosides, Steroids, Resins, Proteins, Phenolic compounds, tannins.^[3,8]

Parts Used: Root.^[3]

Dosage: The dose of Sosan according to *Shaikh* it is *Itola -Imasha*.^[3] Nowadays, it is used in the quantity of about 3.5 -7.5 gm.^[7]

Adverse Effects (Muḍir Atharāt): According to Unani scholars Sosan is harmful for the lungs, and it also causes nausea and vomiting.^[7]

Musleh (Corrective): Lung related adverse effects can be avoided by the use of honey^[7], nausea and vomiting can be prevented by the use of Tursh Ruboob.^[7]

Badal (Substitute): Alternative for Sosan is Rewand Chini.^[7]

Scientific Reports

Invitro-Studies

• Antifungal Effect

Uniyal V *et al* concluded that *I. ensata* extract has an antifungal effect and can be used to treat invasive trichosporonosis as it showed inhibition against trichosporonosis. In this study, the plant extract of *I. ensata* in different solvents have been used and found effective against *Trichosporon asahii*. The solvents exhibited the overall effectiveness in the order Methanol > Ethanol > Acetone > Chloroform. Methanol extract of the plant was found to be most effective with a zone of inhibition 35mm and MIC at 6.2 mg/ml followed by ethanol with zone of inhibition 20 mm and MIC at 100 mg/ml. Methanol extract was found to be more effective

compared to positive control Ketoconazole and Nystatin.^[16]

• Antimicrobial Effect

Wagay JI *et al* reported that Phytochemical analysis of chloroform, ethyl acetate and methanol extract of rhizomes of *Iris kashmiriana* and *Iris ensata* showed the presence of carbohydrate, alkaloids, flavonoids, phenolics, tannin, saponins, triterpenoids. Methanol extract of rhizomes of *Iris kashmiriana* and *Iris ensata* possess antimicrobial potential against antibacterial and antifungal strain against *Bacillus cereus*, *Pseudomonas aeruginosa*, *Proteus vulgaris* and *Escherichia coli* and fungal strains of *Candida albicans* and *Aspergillus niger*.^[17]

• Anti-Oxidant Activity

Ahmad Ganaie *et al* concluded that the qualitative phytochemical screening of crude extracts of *Iris ensata* revealed that alkaloids, phenols, anthraquinones, and flavonoids were present in it, and the study showed that the *Iris ensata* found to have broad-spectrum antimicrobial activity against various bacterial and fungal strains i.e. *E. coli*; *P. aeruginosa*; *S. aureus*; *B. subtilis*; *K. pneumonia*; *A. niger*; *P. crysogenum*; *C. Albicans*; *T. rubrum*; *E. floccosum* and *M. canis*.^[18]

Clinical Trials

• Anti-Inflammatory Activity

Iris ensata extract (10 ml) was made and used locally at night in the form of humool (pessary) after menses for 15 days for three cycles in the test group. *Iris ensata* was given in the form of *majun*, 10 gm in two separate doses, after menses for three cycles. The control group received three cycles of oral administration of a 100mg/BD doxycycline pill after menstruation. Clindamycin, clotrimazole, and metronidazole OD were administered locally in the evening following menstruation for seven days during the course of three cycles. Per speculum and cervical swab culture results were used as objective measures to evaluate the therapy outcome. On per speculum examination hypertrophy, congestion or redness, naboths, etc disappeared significantly. The culture report which was positive in some patients turn out to be negative. The discharge was also diminished noticeably. So, Mirza *et al* concluded that *Iris ensata* is very effective in relieving the symptoms and signs of cervicitis.^[19]

• Membrane Stabilizing Action In Lungs

The study by Alam *et al.* was conducted study on patients who had a provisional diagnosis of having chronic bronchitis, 70 subjects were chosen randomly after meeting the inclusion and exclusion criteria, and among them, 60 cases finished the trial. 10 (14.2%) cases were dropped out from the study as they were unable to adhere to follow the protocol. Selected subjects were received decoction in which of *Asal-us-Soos*, *Alsi*, *Irsa*, *Barg-i-Adoosa*, and Honey. The duration of the study was 42 days. The weekly follow up of the cases was

carried out to evaluate the efficacy of the drugs, this formulation showed alleviating in sign and symptoms of chronic bronchitis as well as improvement in FEV₁ and FEV₁/FVC (Tiffeneau-Pinelli index) ratio without any side effects.^[20]

Anti-Acne Activity

Unani Herbal Formulation (*Ṭila-ī Muhasā*)

A single arm interventional Study conducted by Doni *et al.* on subjects of facial acne vulgaris, in this study 30 participants in age group 13–40 years of both genders and clinically diagnosed with facial acne vulgaris were selected from the 61 subjects screened, after obtaining written informed consent. Duration of therapy was 21 day, Each participant was given finely powdered unani herbal formulation *Ṭila-ī Muhasā* containing ((*Azadirachta indica* leaves, *Albizia lebbbeck* stem bark) and (*Iris ensata* root)) to apply at night on a cleansed and dried face after making a uniform paste in lukewarm water. Additionally, after 20–30 min, it was suggested to wash the face with plain normal water and follow-up was done on every 7 days, so it was found that *Ṭila-ī Muhasā* was effective statistically as well as clinically in reducing the signs and symptoms of acne vulgaris and improving the quality of life due to Qabiz (astringent), Muhallil-i Waram (resolvent), Dafi' Ta'ffun (antiseptic), Jalī (detergent) and Mujaffif (desiccant) properties of the ingredients of *Ṭila-ī Muhasā* as described in Unani literature.^[21]

Animal Study

• Cardio-Protective Activity

This study was conducted by Ansari A *et al.*, the aim of this study was to evaluate the effect of *Iris ensata* on Isoprenaline-induced myocardial necrosis in experimental rats. The myocardial necrosis was induced by injecting the Isoprenaline intraperitoneally in the dose of 85 mg/kg of body weight for four consecutive days. Before the animals were sacrificed, they received the aqueous extract of 'Irsa' (*Iris ensata*) in the dose of 100 mg/100 gm of body weight orally for two consecutive days. The chest of the rats was opened by midline incision and the blood was drawn from the heart for biochemical estimations of GPT (glutamic-pyruvic transaminase) and LDH (lactate dehydrogenase). For the purpose of estimating cardiac glycogen, a portion of the heart was also collected. The medication prevented the fall in heart glycogen and stopped the rise in the levels of SGPT, and SLDH indicating that it was effective in preventing isoprenaline-induced myocardial necrosis.^[22]

• **Murakkabat (Compound Formulations):** *Sharbat-e-Zufa*^[3,5]; *Zimad-e-Khanazeer*^[3] *Iris ensata* (*Sosan*) is a rare medicinal plant, Iris species are mainly used as ornamental plants, due to their colorful flowers, or in the perfume industry, due to their violet-like aroma, but lot of iris species were also used in many parts of the world as medicinal plants for healing of a wide spectrum of diseases. Nowadays the botanical and biochemical research studies bring new findings about chemical

compounds in roots, leaves, bark, and flowers of the iris species, about their chemical content and their medicinal usage.

Sosan (*Iris ensata* Thunb.) is a medicinal herb that is used in unani system of medicine Since many years, it has many pharmacological actions like anti-microbial, antioxidant, antifungal, anti-inflammatory, Membrane stabilizing action in lungs, Anti-acne and Cardio-protective activity. But still, it is necessary to scientifically validate its other activities with clinical and experimental studies.

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