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“Hepatocentric Activity of Afsanteen (*Artemisia Absinthium* L) in Unani Medicine – An Appraisal”

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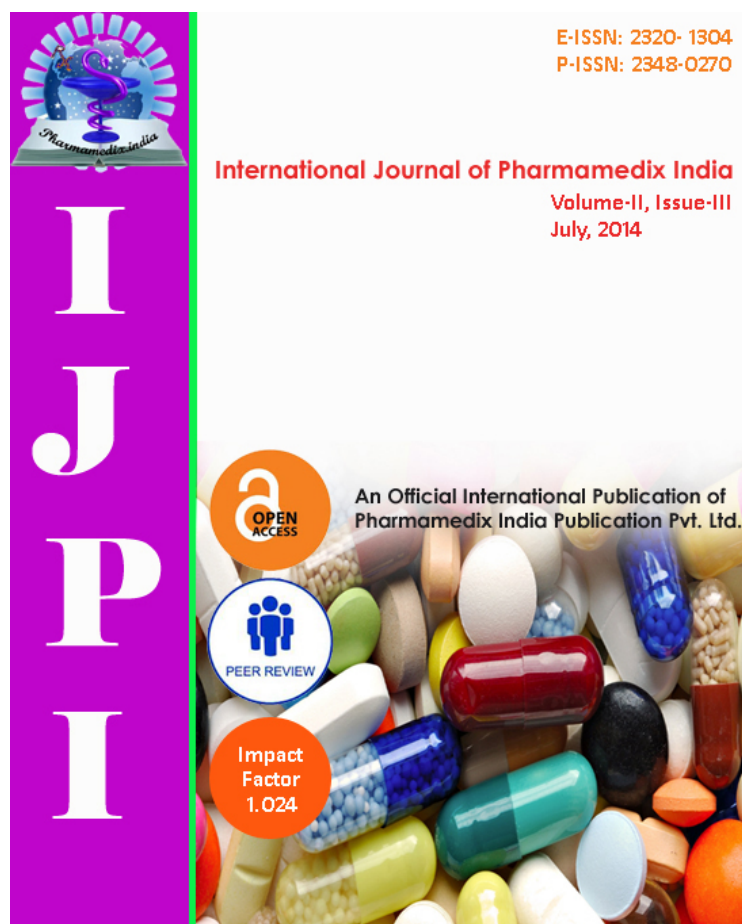
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Abstract:

Mother Nature has been endowed by Almighty with diverse flora and fauna for its optimum utilization by the mankind. Traditionally Afsanteen (*Artemisia Absinthium* L) has long been considered an effective remedy to improve appetite and to treat dyspeptic complaints. It is also used as a tonic, stomachic, anti-septic, anti-inflammatory, hepatoprotective, anti-spasmodic, carminative, febrifuge and anthelmintic in Unani medicine. Of late due to global herbalization, biotechnologists are evincing keen interest in the herbal drugs as around 75% of the global population still rely on non-conventional medicine due to their low cost, easy availability and above all sans adverse effects. Afsanteen is an aromatic and bitter shrubby plant which is native of Europe, also found in Kashmir up to 1500-2000 m altitude. It is rich in volatile essential oil and loaded with several phytochemical constituents. A strenuous attempt has been made to highlight the hepatocentric and other medicinal activities of Afsanteen as mentioned in Unani classics and its validation through various scientific studies.

Keyword: Afsanteen, *Artemisia absinthium* L, Hepatoprotective, Herbal drugs, Unani medicine.

Introduction

Artemisia absinthium Linn. is a bitter, aromatic, and the perennial shrubby plant [1, 2, 3]. This plant is commonly known as *Afsanteen Rumi* or worm wood. In Unani Medicine, the best quality of *Afsanteen* regards to one obtained from Rome. [4]. It grows from 60 to 120 cm in height with a woody, tough rosette and tall branch bearing stem. The leaves of the plant have been used in medicines as well as a beverage [5]. The entire plant is an aromatic stimulant and previously enjoyed a high

repute in frailty of the digestive organs and in fevers. [1].

The morphology of the plant has been described in detail by some Unani physicians, the shrub resembles to *Aqhawan* which is known as *Babuna Gaad* in Persian. The stem is straight, long, with white trichomes and has numerous branches. The bark is whitish green in colour. The leaf of the plant is about two inches long, whitish green in colour and has resemblance with *Sa'tar*. The flower resembles with *Gule Babuna* but little smaller. Outwardly the colour of flower is white but it

is yellow inwardly. There is a small bulb at the base of the flower filled with small seeds. The seeds are bitter in taste and resembles with *Aspand* seeds. The taste of leaves and other parts are very bitter similar to Aloe vera and have peculiar hard smell causing aversion. *Afsanteen* is of five types, Soosi, Tarmoosi, Nabti, Khorasani and Rumi [6, 7, 8].



Illustration: *Afsanteen (Artemisia absinthium L)*

Binomial Name

Artemisia absinthium Linn.

Taxonomy

Kingdom : Plantae

Class : Magnoliopsida

Order : Asterales

Family : Astraceae

Genus : Artemisia

Species : absinthium^[9]

Vernacular names

Arabic : *Khatraq*

Urdu : *Afsanteen*

English : Wormwood, Absinthe

Persian: *Marwah Afsanteen Rumi, Marw, Shin, MaviBakhosha*

Greek: *Apsinthion*

Hindi: *Vilayathi Afsanteen, Majri, Mastiyarah, Karmala, Satadu*

Sanskrit: *Damara, Indhana*

Kannada: *Urittige, Uruvalu*

Tamil: *Masipattri*

Telugu: *Maachipati, Tartiha*

Malayalam: *Nilampala, Shulabandha*

Bengali: *Mastaru*

Guajarati: *Mastaru*^[10, 11]

Habitat

Afsanteen is native to Europe but has become naturalized in Canada and United States^[5]. It grows in Europe, North Africa, parts of Asia, and North and South America^[2]. In Kashmir, it is found at an altitude of 5000-7000 ft^[3, 12, 13]. The principal producers are the former USSR, Bulgaria, former Yugoslavia, Hungary and Poland^[14].

Morphological characteristics

I. Macroscopic features

The plant is aromatic, silky, pubescent, herbaceous growing to a height of 0.8-1.2 meters, and rarely exceeds 1.5 meters. Its stem is erect angular, ribbed, 0.3-0.9 m long. The root is hard, woody and rhizomatous. The stems appear silver-green in colour and are straight, grooved and branched. Leaves are spirally arranged and covered in fine silky silver-white hair, with a grey-green

appearance on top and white below. Leaves are ovate or obovate; 2.5-5 cms long. Flowers are small, greenish-yellow and tubular without a pappus and clustered in globular bent down capitulae. These are clustered on leafy and branched panicles. The fruit is described as a small achene. The plant carries flowers from summer to early autumn, and pollination is anemophilous.

II. Microscopic features

The stem in transverse section shows a prominent wavy outline. The young stem and twigs show outer single layer of epidermis which consist of cubical cells. Many of the epidermal cells are extended outwards to form trichomes. The trichomes are formed of cells arranged in single row. The epidermis followed by the cortical portion 4-6 layers of colleenchymatous cells the endodermis is of parenchymatous cells. The cork of mature stem is 2-3 layers of thick cells.

The powdered drug is brownish yellow in colour. On examining the characteristic, non-lignified hairs were found to be T shaped. The hairs have 1-4 celled stalks and are collapsed twisted and broken, glandular hairs, stalk 1-2 celled, the glandular portion consisting of glands surrounded by membrane. Few simple hairs from flowers are long and up to 0.09 mm wide. The trichomes of leaf fragments are either with a single celled stalk or with bicellular head or the multicellular stalks with the unicellular head. The epidermal

fragments are with elliptical stomata fragments of mesophyll and palisade cells containing chloroplastids, tracheids are mostly spiral up to 0.05mm in width. Some sclernchymatousfibres are with usually lignified walls and simple pores^[15, 16].

Chemical constituents and active principles

The active constituents are the bitter substances and essential oil. Bitter substances consists of sesquiterpene lactones, principally the dimericguaianolide absinthin, artabsin, artabsinolides A, B, and C others. The essential oil is variable in composition according to geographical source and chemotype with any one of *p*-thujone, *trans*-sabinyacetate, *cis*-epoxyocimene, chrysanthenyl acetate, and sesquiterpenes, monoterpenes are also present. Despite the above organic constituents inorganic constituents like lead, aluminum, iron, calcium, magnesium, potassium and sodium are also present^[11, 15, 16, 17].

Mizaj (Temperament)

The Unani physicians have attributed the temperament of *Afsanteen* as 'Hot' in the first degree and 'Dry' in the second degree.¹⁸⁻²¹ Some have attributed it as 'Hot' in the second degree^[7, 22].

Miqdarekhorak (Dosage)

Powder	:	4.5 g – 7 g
Decoction	:	17.5 ml – 24.5 ml ^[7, 8] .

Af'al(Actions)

Muqawwi-e-Meda (Stomachic),
Muqawwi-e-Jigar (liver tonic), *Musakkhin*
(Calorifacient), *Dafa-e- Humma*
(Antipyretic), *Mudir-e-Boul* (Diuretic),
Mudir-e-haiz (Emmenagogue), *Muffateh*
Sudad (Deobstruent), *Mushtahi* (Appetizer),
Qatilededan Shikam (Vermifuge), *Mushile*
Safra (Purgative), *Muhallil-e-Warm* (Anti-
inflammatory), *NafeAuja* (Analgesic)^{[6, 10, 11,}
15, 23, 24, 25, 26, 27, 28]

Mawaqelstemaal (Indications)

Amenorrhoea, Anorexia, Arthrosis, Cancer,
Coryza, Cholecystitis, Dropsy,
Dysmenorrhoea, Dyspepsia, Fevers, Chronic
Fevers, Irritable bowel syndrome, Headache,
Jaundice, Mycosis, Malaria, Inflammation,
Infection, Otagia, Pin worm, Round
worm^[6,10, 11, 15, 23, 24, 25, 26, 27, 28].

Muzir(Adverse Effect)

For oral administration, the presence of
thujone content in *Afsanteen* causes
vomiting, stomach and intestinal cramps,
headache, dizziness and disturbance of
central nervous system ^[2]. It has adverse
effects on the stomach ^[6, 21,22]. It is
contraindicated in pregnancy ^[29]. Its long
term administration may cause Absinthinism
associated with hallucination, nervousness
and mental deterioration ^[30]. It may also
cause headache ^[8, 20, 22].

Musleh(Corrective)

Anisoon and *Mastagi* are compounded with
Afsanteen to prevent from its adverse effects
^[20, 21].

Badal (Substitute)

Ghafis in diarrhea and *Asaroon* in
strengthening stomach ^[31].

Murakkabat (Compound formulations)

ItrifilDeedan, *Sharbate Afsanteen*, *Qurse*
Afsanteen, *Arqe Afsanteen*, *Safoofe*
Afsanteen, *Sikanjabeen Afsanteen*, *Roghan*
Afsanteen, *RoghanKalanetc*^[32, 33].

Hepatocentric pharmacological activities

Many experimental and clinical trials have
been conducted to explore the hepatocentric
pharmacological effects of *A. absinthium*,
some of them are listed below.

In hepatic diseases, a suspension of 20 mg
Afsanteen extract in 10 ml water was
administered with a stomach probe after
which a significant effect on alpha amylase,
lipase, bilirubin and cholesterol was observed
during 70-100 minutes ^[2, 29].

It is reported that aqueous extract of
Artemisia absinthium L. showed
hepatoprotective activity against
immunologically and chemically induced liver
injuries in mice. This could be attributed to
antioxidant and immunomodulatory effect,
which validates the traditional use of
Afsanteen in Uighur Medicine ^[34].

Oral administration of *A. Absinthium* L. in the
form of aqueous extract at the dose 200
mg/kg for four weeks in rats treated with

lead (Pb) was found to possess significant effect in lowering lipid peroxidation concentration and capable of inhibiting formation, and antagonizing H₂O which caused haemolysis, indicating that this plant extracts act as scavenger against hydroxyl radicals^[35].

Aqueous-methanolic extract of *Afsanteen* has showed hepatoprotective effect at the dose of 500 mg/kg, orally twice daily for two days in rats, against acetaminophen- and CCl₄-induced hepatic damage which is suggestive of inhibitory effect on microsomal drug metabolizing enzymes which corroborate the traditional use of plant in hepatic damage^[36].

Afsanteen has found to possess hepatoprotective effect in an experimental study with severe liver injury in Wistar rats induced by CCl₄ which suggests its prospective use in clinical conditions^[37].

A thirteen week repeated dose toxicity study of 2% wormwood (*Artemisia absinthium*) aqueous extract was performed in both sexes of Wistar Hannover (GALAS) rats. All rats had survived at the end of study and no changes indicating obvious toxicities that are attributable to the treatment of worm wood extract was observed in the body weight, haematological and biochemical examination, organ weight, and histopathological examination^[38]. A clinical trial reported the hepatoprotective effect of

Afsanteen by relieving 80-90% viral hepatitis symptoms^[39].

The role of *Arq Afsanteen* was established by early normalization of post-operative deranged liver function and helped in speedy recovery after choledocholithotomy^[40].

A randomized single blind controlled study aimed to evaluate the safety and efficacy of *Afsanteen*(*Artemisia absinthium*) in cases of fatty liver had revealed significant effect in relieving certain subjective and objective symptoms of fatty liver when compared to control drug^[41].

A pharmaceutical combination for treating cases afflicted with DNA virus of the herpes family or DNA of Hepatitis B or Hepatitis C virus, comprising at least two of compounds selected from the group consisting of *Artemisia absinthium*, Resin of *Pistacialentiscus*, fruit of *Delphinumdenudatum* exhibit virustatic and anti-viral property^[42].

Afsanteen has been incorporated as a potent hepatoprotective drug and for non-ulcer dyspepsia in various review studies carried out^[43, 44, 45, 46].

Other activities of Afsanteen

Apart from above hepatocentric activities, *Afsanteen* has also been widely reported to possess antioxidant,^[47] antidepressant,^[48] analgesic and anti-inflammatory,^[4] anticancer,^[49,50] antimalarial,^[51] antihelmenthic,^[52] antibacterial,^[53]

antiprotozoal,^[54]antigasrtic ulcer,^[55] neuroprotectiveactivity,^[56] and steroid-sparing effect in Crohn's disease.^[57]

Conclusion:

Liver diseases are one of the major causes of high morbidity and mortality. Viruses, drugs, toxins, alcohol and metabolic syndrome are the major causes of hepatic dysfunction where in oxidative stress is generally said to be the mechanism involved in the instigation and progression of hepatic damage. In future ideal drug development for liver disorders may be such that it should possess hepatoprotective, anti-inflammatory, anti-oxidant, immunomodulatory and anti-microbial properties. *Afsanteen* ideally fits with this criterion. This potent multifarious herb particularly hepatocentric, used therapeutically by the Unani physicians since time immemorial in various maladies has been duly supported and validated by above mentioned in vitro and in vivo studies vindicate the claims made by Unani scholars. However conservation and optimum utilization of such herbs is also a challenge and necessity to the stakeholders for the betterment of humanity.

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Conflict of Interest: Nil

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