

Review article

One for All - *Artemisia absinthium* (Afsanteen) “A Potent Unani Drug”

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ABSTRACT

The therapeutic use of the wormwood plant *Artemisia absinthium* L. dates back to at least Roman times. There are more than 200 plants in the genus *Artemisia*- including southern wormwood, petite wormwood and Grande wormwood and encompasses about 500 species. The best-known species of wormwood is *Artemisia absinthium*, native to temperate Eurasia and North Africa and is branded for its extreme bitterness. It is a magical greens booze used as carminative to support healthy appetite, balances healthy flora, cleanse the digestive tract of parasite and toxins. It possesses anti-inflammatory, immunomodulatory, hepatoprotective, anti-helminthic and anti-depressant activity. Thujone excites nervous system when taken in small amount. Due to contrary history of wormwood, its application in individuals should be preceded by a thorough and cautious risk-benefit analysis. In this appraisal an attempt is done to validate scientifically, mentioned therapeutic potential of *Artemisia absinthium* in classical Unani literature using PubMed, Science Direct researches.

Keywords Afsanteen, Wormwood, Thujone, Unani, Hepatoprotective

INTRODUCTION

Healing with medicinal plants is as old as mankind itself. Since prehistoric times, in quest for rescue for their disease, the individuals looked for drugs in nature. According to ancient Babylon reports, the use of plants as medicine dates 60,000 years ago. In Greece, written material on herbal medicine dates approximately 2500 years ago. (Msomi, et al., 2018), (Ahamad, et al., 2016), (Dar, et al., 2017), (Petrovska, 2012), (Z, et al., 2017), (Pan, et al., 2014). Plants seems to be safer and potent than conventional biosynthetic drugs (Msomi, et al., 2018). It is stated in scientific literature that up to four billion people (representing 80% of the world's population) rely on herbal medicinal products as a chief basis of healthcare and classical medical practice which comprises the usage of herbs (Ekor, 2014), (Sen, et al., 2017), (Oyebode, et al., 2016), (Merriem, et al., 2013), (Gude, 2013), (Sato, 2012), (Khan, 2016). Medicinal plants are regarded as rich resources of traditional medicines and from these plants many of the modern medicines are produced. According to WHO, around 21,000 plant species have the potential for being used as medicinal plants (Khan, 2016), (Singh, et al., 2018), (Frontasyeva, et al., 2017), (Kumar, et al., 2019). Many herbal drugs pre-own hepatoprotective, immunomodulatory, anti-oxidant, anti-inflammatory, anti-cancer activity, anti-depressant etc. activities (Ramawat, et al., 2009), (Sharma, et al., 2019), (Ramana, et al., 2014), (Kumar, et al., 2015) (Nadkarni, 1989), (ARZĀNI (1134-1722), 1923),

(Chopra, et al., 1956). Asteraceae is regarded as one of the largest and highly advanced family with approximately 1528 (Mukherjee, 2006), (TYROCITY, 2018) or 1620 (Petruzzello, 2018), (Panero, et al., 2012) genera and 22750 or 23600 species of herbs, shrubs and trees. Among the Asteraceae family, *Artemisia* is pharmacologically one of the crucial polymorphic genera that encompasses about 400 (Rustaiyan, et al., 2016), (NWE, 2019) to 500 species (Hussain, et al., 2017), (KURŞAT, et al., 2015), (Shah, 2014), (Abad, et al., 2013), (Abad, et al., 2012), (Bora, et al., 2011), (Ashraf, et al., 2010) and *Artemisia absinthium* commonly known as Afsanteen/wormwood is a well-known herb, native to temperate Eurasia and North Africa and also found in South America. In India, it is found in Kashmir Valley (Ahamad, et al., 2019), (Chopra, et al., 1956), (ENVIS, 2019). Wormwood is mentioned in almost all the herbal medicinal books of Unani Literature and the Western world. During Hippocratic period and by now, this plant is considered as a comprehensive medicine for all diseases owing to its curative medical powers. The methanolic extract of aerial part of *A. absinthium* possesses anti-inflammatory, analgesic, anticancer, hepatoprotectivity, while essential oil shows antimicrobial (Marwat, et al., 2009), nematocidal activity (Dane, et al., 2016). Different extract shows anti-ulcerogenic, anti-depressant activity (Ahamad, et al., 2019) (Bhat, et al., 2019) (Masoudi, et al., 2017), (Hussain, et al., 2017), (Shafi, et al., 2012), (BORA, et al., 2010). The medical use of *absinthium* is also proved by the freshly published monograph of the European Medicines Agency (HMPC, 2017) and by Southern Cross University (Sherrin, 2008). Afsanteen has robust anthelmintic properties that is why it has been given the name “wormwood” by the prehistoric Egyptians. It is being used in various nervous debilities, liver disorders, skin manifestations etc. In this review paper an attempt is done to compile Unani Literature and Scientific/clinical researches done on wormwood.

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Taxonomic Hierarchy (USDA, 2019) (ITIS Report, 2019)

Kingdom	Plantae	Planta, Vegetal plants
Subkingdom	Viridiplantae	Green Plants
Infrakingdom	Streptophyta	Land plants
Super division	Embryophyta	
Division	Tracheophyta	Vascular plant, Tracheophyte
Subdivision	Spermatophytina	Seed plants
Class	Magnoliopsida	
Order	Asterales	
Family	Asteraceae/ Compositae	Sunflowers
Genus	<i>Artemisia</i> L.	Sagebrush, wormwood
Species	<i>Artemisia absinthium</i> Linn.	Absinthium, absinth wormwood, common sagewort

Vernacular Names

Languages	Names	References
English	Absinthe, Wormwood, Sagebrush, Madderwort, Old Women, Green Ginger, Mugwort	(Dymock, et al., 2005), (Bentley, et al., 2009), (Sambamurty, 2006), (Plant Use, 2011), (Ministry of AYUSH, 2016), (Kirtikar, et al., 1987), (Asolkar, et al., 1992), (Kabiruddin), (Kabiruddin, 1996), (Baitar), (Gani, 1996), (ENVIS, 2019), (Saifuddin, 1990), (Nagzami, 1975), (Goswami), (M.M.P.N.D., 2006), (Singh, 2015), (The J & K Medicinal Plants Introduction Centre, 2013)
Arabic	Ifsinteen, Kashuth	
Persian	Afsanthin, Marwah, Afsatiyun	
Chinese	Ye ai (Cantonese), Yang ai, Ku ai	
French	Armoise, Amere, Genepi, Vermouth	
German	Wermut, Absinth, Bitterer Beifuss, Wurmkraut	
Dutch	alsem, absintalsem	
Spanish	ajenjo, alosna	
Italian	Amarella, Assenzio Selvatico	
Urdu	Afsanteen Rumi, Qaisoom	
Sanskrit	Indhana, Damar, Nagadamini	
Hindi	Vilayathi Afsantin	
Kashmir	Thethwan	
Telugu	Moshipatri, Tartiha	
Punjabi	Mastiyara	
Malyalam	Nilampala, Shulabandha	
Marathi	Sarpana, Surpan	
Kannada	Uruvalu, Urigattige, Davana	
Bengali & Gujrati	Mastaru	

Temperament

Hot² and Dry²

(Ahmed, et al., 2015) (Ibn Rushd/ Averroes (1126-1198), 2001), (Ministry of AYUSH, 2016), (Baitar)

Geographical Distribution

Artemisia absinthium is native to temperate regions of Eurasia and Northern Africa and in India found in Kashmir at altitudes of 1500- 2100 m. (Ansari, et al., 2019) (Ahamad, et al., 2019) (Kabiruddin), (Khare, 2007), (Goswami), (Kabiruddin, 1996)

Morphological Description

Artemisia absinthium is a woody-based perennial herbaceous plant with fibrous roots. The stem is erect, non-woody, hairy, gray-green and 2-3' tall. The leaves are spirally arranged, greenish-grey above and white below, covered with silky silvery-white trichomes, bipinnate to tripinnate with long petioles, its flowers are pale yellow, tubular, and clustered in spherical bent-down heads (capitula), have little ornamental value. Flowering is from early summer to early autumn. Foliage is highly aromatic when bruised.

Microscopically, outer single layer of epidermis of young stem twigs consist of cubical cells with abundant of T-shaped, rather thin-walled trichomes while in mature stem the endodermis has casparian strips while the cortex and pith are parenchymatous. The middle vascular bundle is larger in size showing prominent xylem and phloem layers. The stomata are present on the lower surface. (AHPA, 2015), (MBG, 2018), (Konowalik, et al., 2012), (Ansari, et al., 2019), (Ministry of AYUSH, 2016) (Nadkarni, 1989) (Dymock, et al., 2005)



Fig 1. *Afsanteen*

Active ingredients of *A. absinthium*

Essential oil	Chamazulene, nuciferol butanoate, nuciferol propionate, caryophyllene oxide, phellandrene, pinene, azulene. [10]-thujone, [9]-thujone, myrcene, trans-sabinyl acetate cis- and trans-epoxyocymenes, chrysanthenyl acetate, thujyl alcohol, nerol, isothujyl acetate. Prochamazulenogen. β-pinene, hydrocarbon monoterpenes, sabinene, 1,8-cineole, Artemisia ketone, linalool, trans-verbenol, carvone, curcumene, neryl butyrate, neryl 2-methylbutanoate, neryl 3-methylbutanoate.
Sesquiterpene lactones	absinthin, artemetin, matricin, isoabsinthin, and artemolin Arabin, artabin, ketopelenolide, santonin-related lactones
Flavonoid	artemitin, rutin, glycosides of quercetin, chlorogenic, caffeic acids, and
Tannins	
Carenenoids	
Phenolic compounds	syringic, chlorogenic, caffeic acid, ferulic acid, sinapic acid, p-hydroxyphenol acidic acid, vanillic acid, salicylic acid, and p-coumaric acid
Ligans	diayangmbin and epiyangmbin
Glucosides	Absinthin, anabsinthin
Bitter principles	Artamarin, artamaridin, artamaridin, artamarinin quebrachitol, artemitin, rutin, glycosides of quercetin, 24-zeta-ethylcholesta-7,22-dien-3-β-ol

(Bhat, et al., 2019), (Wani, et al., 2014), (Razaenodehi, et al., 2008), (Msaada, et al., 2015), (Nagzami, 1975), (Kabiruddin, 1996), (Hakim,

2016), (Dymock, et al., 2005), (Sambamurty, 2006), (Asolkar, et al., 1992), (Ministry of AYUSH, 2016)

Pharmacological action with therapeutic uses of Artemisia absinthium

Pharmacological Action	Therapeutic uses	Unani & Ethnobotanical References
Hepatoprotective (<i>Muqawwī -i-Jigar</i>)	Liver Disorders: Viral and Non-Viral Hepatitis, Ascites, Splenomegaly, Jaundice, Hepatomegaly, Fatty Liver, Cirrhosis of Liver	(Qasmi, 2015), (Khan, 1993), (Ajmal, 1995), (Qershī, 2012) (Hakim, 2016), (Baitar) (Gani, 1996), (Goswami) (Kabiruddin, 1996) (Kabiruddin), (Nagzami, 1975), (Saifuddin, 1990), (Ibn Sina/Avicenna (980-1037 A.D.), 1933), (Al-Majusi/ Haly Abbas (930-994), 2010) (Al-Razi/Rhazes (865-925 A.D.), 2000), (Rabban al-Tabari (780 850 AD), 2002), (Placeholder2), (Al-Razi/Rhazes (865-925 A.D.), 1980) (ARZĀNI (1134-1722), 1923), (Khan, 2016)
Chloretic (<i>Mushil-i-Safra'</i>)		
Appetizer (<i>Mushṭahī</i>)		
Carminative (<i>Kāsir-i-Riyāh</i>)		
Astringent (<i>Qābid</i>)		
Anthelmintic (<i>Qātil-i-Didān-i-Am 'ā'</i>)		
Anti-inflammatory (<i>Muhallil-i-Waram</i>)		
Anti-oxidant		
Immunomodulator		
Analgesics (<i>Musakkin-i-Alam</i>)		GIT Disorders: Gastritis, Indigestion, Anorexia, Flatulence Chron's Disease, Piles, Fissures, Worm Infestation
Antipyretic (<i>Dāfi '-i-Hummā</i>)		
Diaphoretic (<i>Mu'arriq</i>)		
Antimalarial		
Antimicrobial		
Antiseptic (<i>Dāfi '-i-Ta'affūn</i>)		
Detergent (<i>Jālī</i>)		
Brain tonic (<i>Muqawwī-i-Dimāgh</i>)		
Antidepressant		
Narcotic		
Anti-cancer	Sprain, Rheumatism, Gout	(Nadkarni, 1989), (Dymock, et al., 2005), (Bentley, et al., 2009), (Sambamurty, 2006), (Chopra, et al., 1956), (Asolkar, et al., 1992), (Kirtikar, et al., 1987), (Ministry of AYUSH, 2016)
Anaphrodisiac (<i>Qāti '-i-Bāh</i>)		
Emmenogogues (<i>Mudirr-i-Hayd</i>)		
Insecticidal		
	Fever	
	Malaria	
	Skin diseases	
	Depression, Facial Palsy, tremors, weak memory, convulsions, epilepsy, stroke	
	Cancer	
	Amenorrhoea	
	Pesticide	

There is plethora of reports of experimental and clinical evidences related to its innumerable activity

Hepatoprotective

- Hepatocurative Effect of *Saussurea lappa* C.B Clarke and *Artemisia absinthium*, Linn in Chronic Hepatitis B (Ansari, et al., 2018)
- Ameliorative effects of *Qurs-e-Afsanteen* on Gentamicin induced Hepatotoxicity and Oxidative stress in rabbits (Aziz, et al., 2017)
- In vivo hepatoprotective activity of the aqueous extract of *Artemisia absinthium* L. against chemically and immunologically induced liver injuries in mice (N, et al., 2010)

- Hepatoprotective activity of aqueous-methanol extract of *Artemisia vulgaris* [Journal] // Phytotherapy Research (Ghilani , et al., 2005)
- Preventive and curative effects of *Artemisia absinthium* on acetaminophen and CCl4-induced hepatotoxicity (Ghilani, et al., 1995)

Anti-inflammatory

- Natural Treatments for Fissure in Ano Used by Traditional Persian Scholars, Razi (Rhazes) and Ibn Sina (Avicenna) (Derakshan, 2016)
- Anti-inflammatory, Antioxidant and Antimicrobial Effects of Artemisinin Extracts from *Artemisia L.* (Kim, et al., 2015)
- Anti-inflammatory and Analgesic Activities of *Artemisia absinthium* and Chemical Composition of its Essential Oil (Hadi, et al., 2014)

Anti-helminthic

- Therapeutic efficacy of *Artemisia absinthium* against *Hymenolepis nana*: in vitro and in vivo studies in comparison with the anthelmintic praziquantel (EVN, 2018)
- Flavonoids and Sesquiterpene Lactones from *Artemisia absinthium* and *Tanacetum parthenium* against *Schistosoma mansoni* Worms (Almeida, et al., 2016)
- Anthelmintic activity of extracts of *Artemisia absinthium* against ovine nematodes (Tariq, et al., 2009)
- Steroid-sparing effect of wormwood (*Artemisia absinthium*) in Crohn's disease: a double-blind placebo-controlled study (Omer, et al., 2007)
- Taxonomic Study and Medicinal Importance of Three Selected Species of the Genus *Artemisia* Linn (Qureshi, et al., 2002)

Anti-oxidant

- Role of wormwood (*Artemisia absinthium*) extract on oxidative stress in ameliorating lead induced haematotoxicity (Kharoubi O, et al., 2008)

Immunomodulator

- Estragole and methyl-eugenol-free extract of *Artemisia dracuncululus* possesses immunomodulatory effects (Froushani, et al., 2016)
- *Artemisia absinthium* and *Artemisia vulgaris*: A comparative study of infusion polysaccharides (Corrêa-Ferreira, et al., 2014)

Analgesics

- Topical Effects of *Artemisia Absinthium* Ointment and Liniment in Comparison with Piroxicam Gel in Patients with Knee Joint Osteoarthritis: A Randomized Double-Blind Controlled Trial (Basiri, et al., 2017)
- Anti-inflammatory and Analgesic Activities of *Artemisia absinthium* and Chemical Composition of its Essential Oil (Hadi , et al., 2014)
- Anti-inflammatory and analgesic effect of herbal preparation: septilin. [Journal] // Indian Journal of Medical Sciences. (Khanna, et al., 2001)

Appetizer

- The effect of hydro-alcoholic extract of *Artemisia absinthium* on appetite in male rats (Taraghdari, et al., 2015)

Anti-pyretic

- Chemical Composition and Antioxidant and Antimicrobial Activities of Wormwood (*Artemisia absinthium L.*) Essential Oils and Phenolics (Msaada, et al., 2015)
- Anti-inflammatory and Analgesic Activities of *Artemisia absinthium* and Chemical Composition of its Essential Oil (Hadi, et al., 2014)
- Antipyretic studies on some indigenous Pakistani medicinal plants (Khattak, et al., 1985)

Anti-microbial

- Antimicrobial Activity of *Artemisia absinthium* Against Surgical Wounds Infected by *Staphylococcus aureus* in a Rat Model (Vieira, et al., 2017)
- Volatile composition and antimicrobial activity of the essential oil of *Artemisia absinthium* growing in Western Ghats region of North West Karnataka, India (Joshi, 2013)
- Antimicrobial Activity of *Artemisia absinthium* Against Surgical Wounds Infected by *Staphylococcus aureus* in a Rat Model (Moslemi, et al., 2012)
- Steroid-sparing effect of wormwood (*Artemisia absinthium*) in Crohn's disease: a double-blind placebo-controlled study (Omer, et al., 2007)

Diuretic

- Seasonal variation in the chemical composition, antioxidant activity, and total phenolic content of *Artemisia absinthium* essential oils (Mohammadi, et al., 2015)
- Total phenolic, flavonoids and tannin contents in different extracts of *Artemisia absinthium* (Singh, et al., 2012)
- Composition of the Essential oil of *Artemisia absinthium* from Tajikistan (Sharopov, et al., 2012)

Anti-depressant

- GABA-A Receptor Modulation and Anticonvulsant, Anxiolytic, and Antidepressant Activities of Constituents from *Artemisia indica Linn* (Khan, et al., 2016)
- Chemical Composition and Antioxidant and Antimicrobial Activities of Wormwood (*Artemisia absinthium L.*) Essential Oils and Phenolics (Msaada, et al., 2015)
- Seasonal variation in the chemical composition, antioxidant activity, and total phenolic content of *Artemisia absinthium* essential oils (Mohammadi, et al., 2015)
- Antidepressant and antioxidant activities of *Artemisia absinthium L.* at flowering stage (Mahmoudi, et al., 2009)

Narcotic

- Trypanocidal, trichomonocidal and cytotoxic components of cultivated *Artemisia absinthium Linnaeus* (Asteraceae) essential oil (Martínez-Díaz, et al., 2015)

- Chemical Composition of the Essential Oil of *Artemisia absinthium* Growing Wild in Iran (Razaenodehi, et al., 2008)

Anti-cancer

- *Artemisia absinthium* (AA): a novel potential complementary and alternative medicine for breast cancer (Shafi, et al., 2012)

Emmenagogues

- Effects of *Artemisia monosperma* ethanolic leaves extract on implantation, mid-term abortion and parturition of pregnant rats (Hijazi, et al., 2010)
- Ethnomedicines used in Trinidad and Tobago for reproductive problems (Lans, 2007)
- Herbal infusions used for induced abortion (Ciganda, et al., 2003)
- Herbal medicinal products during pregnancy: are they safe? (Ernst, 2003)
- Absinthe and γ -aminobutyric acid receptors (Olsen, 2000)

Clinical studies on *Artemisia absinthium*

Chronic Hepatitis B	(Ansari, et al., 2019), (Ansari, et al., 2018)
Fatty Liver	(Kim, et al., 2016), (Ahmed, et al., 2015)
Jaundice	(Taraghdari, et al., 2015), (Okuno, et al.)
Ascites	(Wei, et al., 2019), (Ansari, et al., 2018)
Cirrhosis of Liver	(Kim, et al., 2016), (Mohammadian, et al., 2015)
Anorexia	(Taraghdari, et al., 2015)
Chron's Disease	(S, et al., 2010) (Omer, et al., 2007),
Piles	(Hashempur, et al., 2017)
Fissures	(Derakhshan, 2017)
Worm Infestation	(EVN, 2018)
Depression, Paralysis Weak Memory, Stroke Tremors, Convulsion	(N, et al., 2016), (BORA, et al., 2010) (Kharoubi O, et al., 2008)
Osteoarthritis	(Basiri, et al., 2017)
Anemia	(Kharoubi O, et al., 2008)

Adverse effect

- Nausea & Vomiting
- Headache
- Dryness
- CNS Toxicity (hallucination, seizures, numbness, seizures, numbness, restlessness, tremors, etc)
- Insomnia

(Ogbu, 2019), (WebMD, 2019), (Singh, 2015)

CONCLUSION

Plants seems to be safer at the same time being effective than conventional biosynthetic drugs in the management of different ailments. *A. absinthium* is indexed in endangered category, so consistent efforts should be made to shield this plant species from becoming extinct and it will be useful to nurture this plant at a large scale. Various experiments have demonstrated its

hepatoprotective, anticancer, antimalarial, anthelmintic, anti-inflammatory, antidepressant, antiulcer, immunomodulatory and antioxidant activities. Above mentioned studies done so far on the *A. absinthium* confirm the claims of traditional use of this plant but. In the recent years main focus has been on the phytochemical studies to get acquainted with many unknown and known ingredients that can be screened for their therapeutic potential to treat severe health disorders without any side effects. Wormwood has immense potential for researchers and exploring it will lead to identification of new compounds which could be used as drugs for curing common and critical diseases.

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CONFLICT OF INTEREST

The authors have no conflicting financial interests.

REFERENCES

Abad MJ, Bedoya LM, Apaza L, Bermejo P. The *Artemisia* L. Genus: A Review of Bioactive Essential Oils. *Molecule*. 2012;17(3):2542-2566.

Abad MJ, Bermejo P, Bedoya LM. Essential Oils from the Asteraceae Family Active against Multidrug-Resistant Bacteria. Fighting Multidrug Resistance with Herbal Extracts, Essential Oils and Their Components. 2013:205-221.

Abtahi Froushani SM, Zarei L, Esmaeili Gouvarchin Ghaleh H, Mansori Motlagh B. Estragole and methyl-eugenol-free extract of *Artemisia dracunculoides* possesses immunomodulatory effects. *Avicenna Journal of Phytomedicine*. 2016;6(5): 526-534.

Ahamad J, Mir SR, Amin S. A pharmacognostic review on *Artemisia absinthium*. A pharmacognostic review on *Artemisia absinthium*. 2019;10(1):25-31.

Ahmad DR, Shahnawaz M, Hassan P. General overview of medicinal plants: A review. *The Journal of Phytopharmacology*. 2017;6(6):349-351.

Ahmed NZ, Siddiqui MA. Safety and efficacy of Afsanteen (*Artemisia absinthium* L.) in fatty liver: A randomized single blind controlled study. *International Journal of Advances in Pharmacy Medicine and Bioallied Sciences*. 2015;3(2):106-112.

AHPA *Artemisia absinthium* (leaf). American Herbal Products Association. Available at: [http://www.botanicalauthentication.org/index.php/Artemisia_absinthium_\(leaf\)](http://www.botanicalauthentication.org/index.php/Artemisia_absinthium_(leaf)) (Accessed on August 11, 2019).

Ajmal Khan Hkm Bayaz Ajma. ([s.l.]: Aijaz Publishing House), 1995, pp.108-117.

Al-Majusi/ Haly Abbas (930-994) *Ali Ibn Al Abbas Kamil as-Sina/ Liber Regalis* / trans. Kintoori Ghulam Husnain. ([s.l.]: CCRUM), 2010.

Almeida LMM, Carvalho LSA, Gazolla MC, Pinto PLS, Silva MPN, Moraes J, Filho AADA. Flavonoids and Sesquiterpene Lactones from *Artemisia absinthium* and *Tanacetum parthenium* against *Schistosoma mansoni* Worms. *Evidence-Based Complementary and Alternative Medicine*. 2016:1-9.

Al-Razi/Rhazes (865-925 A.D.) *Abubakr Mohammad Zakariya Kitab al-Hawi fi al-Tibb/ Continens Liber/ trans.* (New Delhi, India: CCRUM), 2000, pp.47-147.

Al-Razi/Rhazes (865-925 A.D.) *Abubakr Mohammad Zakariya Kitab-al-Abdal / trans.* CCRUM. (New Delhi, India: [s.n.]), 1980, pp.49-52.

Amat N, Upur H, Blazekovic B. In vivo hepatoprotective activity of the aqueous extract of *Artemisia absinthium* L. against chemically and immunologically induced liver injuries in mice. *Journal of Ethnopharmacology*. 2010;131(2):478-484.

Amrollahi H, Nazari H, Parvini A, Nazari N, Mohammadi A. Anti-inflammatory and Analgesic Activities of *Artemisia absinthium* and Chemical Composition of its Essential Oil [Journal] // *Int. J. Pharm. Sci. Rev. Res.* 2014;24(2):237-244.

Ansari S, Siddiqui MA, Maaz M. Hepatocurative Effect of *Saussurea lappa* C.B Clarke and *Artemisia absinthium*, Linn in Chronic Hepatitis B. *J Young Pharm.* 2018;10(3): 354-357.

Ansari S, Yasmeen S, Khan QA. A Review of *Artemisia Absinthium*, Linn. (Afsanteen) with Special Reference of Unani Medicine. *Journal of Pharmaceutical and Scientific Innovation*. 2019;8(1):11-18.

Ansari S. Siddiqui MA, Malhotra S, Maaz M. Antiviral efficacy of *Quist* (*Saussurea lappa*) and *Afsanteen* (*Artemisia absinthium*) for chronic Hepatitis B: A prospective single-arm pilot clinical trial. *Pharmacognosy Research*. 2018;10(3):282-290.

Arzāni (1134-1722) *Moḥammad Akbar Mizān al-ṭebb/ trans.* Kabiruddin Hkm, 1923, pp.148-151.

Ashraf M, Hayat MQ, Jabeen S, Shaheen N, Khan M, Yasmin G. *Artemisia* L. species recognized by the local community of northern areas of Pakistan as folk therapeutic plants. *Journal of Medicinal Plants Research*. 2010;4(2):112-119.

Asolkar LV, Kakkar KK, Chakre OJ. Glossary of Indian Medicinal Plants with active Principles. ([s.l.]: Council of Scientific & Industrial Research), 1992, pp.92-93.

Aziz A, Khaliq T, Khan J, Jamil A, Majeed W, Faisal MN, Aslam b, Atta K. Ameliorative effects of *qurs-e-afsanteen* on gentamicin induced hepatotoxicity and oxidative stress in rabbits. *Pakistan Journal of Agricultural Sciences*. 2017;54(1):181-188.

Baghban Taraghdari S, Nematy M, Mazidi M, Kamgar M, Soukhtanloo M, Hosseini M, Rakhshandeh H, Norouzy A, Esmaily H. The effect of hydro-alcoholic extract of *Artemisia absinthium* on appetite in male rats. *Avicenna Journal of Phytomedicine*. 2015;5(2):78-83.

Baitar Ibn Jami-ul-Mufradat-al-Advia-al-Aghzia (First British Pharmacopoeia)/ trans. CCRUM. Vol. 1:3: pp.97.

- Basiri Z, Zeraati F, Esna-Ashari F, Mohammadi F, Razzaghi K, Araghchian M, Moradkhani S. Topical Effects of *Artemisia Absinthium* Ointment and Liniment in Comparison with Piroxicam Gel in Patients with Knee Joint Osteoarthritis: A Randomized Double-Blind Controlled Trial. *Iranian Journal of Medical Sciences*. 2017;42(6):524-531.
- Bentley Robert and Trimen Henry *Medicinal Plants*. ([s.l.]: Asiatic Publishing House), 2009. Vol. 3: 4: pp.156.
- BESHAY EVN. Therapeutic efficacy of *Artemisia absinthium* against *Hymenolepis nana*: in vitro and in vivo studies in comparison with the anthelmintic praziquantel. *JOURNAL OF HELMITHOLOGY*. 2018;92(3): 298-308.
- Bhat RR, Rehman MU, Shabir A, Mir MUR, Ahmad A, Khan R, Masoodi M, Madkhali H, Ganale MA. Chemical Composition and Biological Uses of *Artemisia absinthium* (Wormwood). *Plant and Human Health*. 2019;32:37-63.
- Bora KS, Sharma A. The Genus *Artemisia*: A Comprehensive Review. *Pharmaceutical Biology*. 2011;49(1):101-109.
- Cheryl L. Ethnomedicines used in Trinidad and Tobago for reproductive problems. *Journal of Ethnobiology and Ethnomedicine*. 2007;3:13.
- Chopra RN, Nayar SL, Chopra IC. *Glossary of Indian medicinal Plants*. ([s.l.]: Council of Scientific & industrial Research), 1956, pp. 25-26.
- Ciganda C, Laborde A. Herbal infusions used for induced abortion. *Journal of Toxicology. Clinical Toxicology*. 2003;41(3):235-239.
- Corrêa-Ferreira ML, Noleto GR, Oliveira Petkowicz CL. *Artemisia absinthium* and *Artemisia vulgaris*: A comparative study of infusion polysaccharides. *Carbohydrate Polymers*. 2014;102:738-745.
- Derakhshan AR. Natural Treatments for Fissure in Ano Used by Traditional Persian Scholars, Razi (Rhazes) and Ibn Sina (Avicenna). *Journal of evidence based complementary & alternative medicine*. 2017;22(2):324-333.
- Ekor M. The growing use of herbal medicines: issues relating to adverse reactions and challenges in monitoring safety. *Frontiers in pharmacology*. 2014: 177.
- Ernst E. Herbal medicinal products during pregnancy: are they safe? *An International Journal of Obstetrics and Gynaecology*. 2003;109(3):227-235.
- Frontasyeva M, Vasiliev A, Hrist G. NEUTRON ACTIVATION ANALYSIS FOR MEDICINAL PLANTS. *Journal of Health & Medical Informatics*. 2017;8(4):45.
- Gani Najmul Khazain-al-Advia. 1996, pp.73.
- Gilani AH, Janbaz KH. Preventive and curative effects of *Artemisia absinthium* on acetaminophen and CCl₄-induced hepatotoxicity. *General Pharmacology*. 1995;26(2): 309-315.
- Goswami Ram Lubhaya Bayan-al-Advia. pp. 66-68/ 124-126.
- Gude D. Indigenous medicines: A wake-up slap. *Indian Journal of Public Health*. 2013;57(3):84-85.
- Hakim Abdul Bustanul Mufradat. 2016, pp.63.
- Hallal N, Kharoubi O, Benyettou I, Tair K, Ozaslan M and Aoues AEK. In vivo Amelioration of Oxidative Stress by *Artemisia absinthium* L. Administration on Mercuric Chloride Toxicity in Brain Regions. *Journal of Biological Sciences*. 2016;16(5):167-177.
- Hashempur MH, Khademi F, Rahmanifard M, Zarshenas MM. An Evidence-Based Study on Medicinal Plants for Hemorrhoids in Medieval Persia. *Journal of Evidence-Based Integrative Medicine*. 2017;22(4): 969-981.
- Hijazi AM and Salhab AS. Effects of *Artemisia monosperma* ethanolic leaves extract on implantation, mid-term abortion and parturition of pregnant rats. *J Ethnopharmacol*. 2010;128(2): 446-451.
- HMPC European Union herbal monograph on *Artemisia*. European Medicines Agency. 2017. Available at: https://www.ema.europa.eu/en/documents/herbal-monograph/final-european-union-herbal-monograph-artemisia-absinthium-l-herba-revision-1_en.pdf. (Accessed on August 22, 2019)
- Hussain A, Hayat MQ, Ain QU, Bokhari SAI, Sahreen S. Pharmacological Promises of Genus *Artemisia* (Asteraceae): a Review. *Proceedings of the Pakistan Academy of Sciences*. 2017;54(4): 265-287.
- Hussain M, Raja NI, Akram A, Iftikhar A, Ashfaq D, Yasmeen F, Mazhar R, Imran M, Iqbal M. A status review on the pharmacological implications of *Artemisia absinthium*: A critically endangered Plant. *Asian Pacific Journal of Tropical Disease*. 2017;7:3:185-192.
- Ibn Rushd/ Averroes (1126-1198) Abu Walid Muhammad Kitab *Al Kulliyat/ Colliget* / trans. CCRUM. ([s.l.]: CCRUM), 2001, pp. 25-26.
- Ibn Sina/Avicenna (980-1037 A.D.) *Shayk ul Rais Al-Qanun Fi'l Tibb* / trans. Qantoori Ghulam Hussain. (New Delhi, India: Eijaz Publishing House), 1933. Vol. 3(5), pp.849- 912.
- Ikram M, Khattak SG, Gilani SN. Antipyretic studies on some indigenous Pakistani medicinal plants. *Journal of Ethnopharmacology*. 1985;14(1):45-51.
- ITIS Report *Artemisia absinthium* L. India. 2019. Available at: https://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=35445#null. (Accessed on 26th July 2019).
- Joshi RK. Volatile composition and antimicrobial activity of the essential oil of *Artemisia absinthium* growing in Western Ghats region of North West Karnataka, India. *Pharmaceutical Biology*. 2013;51(7): 888-892.
- Kabiruddin Kitab-al-Advia. ([s.l.]: Turkey Urdu Burea), pp. 38, 212.

- Kabiruddin Makhzanul Mufradat. 1996, pp. 80, 418-420.
- Khan Abdul Samad Misbah-al-Advia. 1993.
- Khan I, Karim N, Ahmad W, Abdelhalim A, Chebib M. GABA-A Receptor Modulation and Anticonvulsant, Anxiolytic, and Antidepressant Activities of Constituents from *Artemisia indica* Linn. Evidence Based Complementary and Alternative Medicine. 2016. Pp.12.
- Khan Mahtab Alam. Waram-e- Kabid (Hepatitis)/ Introduction and Importance of Medicinal Plants and Herbs. National Health Portal India. 2016. Available at: https://www.nhp.gov.in/waram-e-kabid-hepatitis_mtl/ (Accessed on 28th June 2016).
- Khanna N, Sharma SB. Anti-inflammatory and analgesic effect of herbal preparation: septilin. Indian Journal of Medical Sciences. 2001;55(4):195-202.
- Khare CP. Indian Medicinal Plants. (New Delhi, India: Springer), 2007.
- Kharoubi O, Slimani M, Aoues A. Neuroprotective effect of wormwood against lead exposure. Journal of emergencies, trauma and shock. 2011;4(1):82-88.
- Kharoubi O, Slimani M, Krouf D, Seddik L, Aoues A. Role of wormwood (*Artemisia absinthium*) extract on oxidative stress in ameliorating lead induced haematotoxicity. African journal of traditional, complementary and alternative medicine. 2008;5(3): 263-270.
- Kim KE, Ko KH, Heo RW, Yi CO, Shin HJ, Kim JY, Park JH, Nam S, Kim H, Roh GS. *Artemisia annua* Leaf Extract Attenuates Hepatic Steatosis and Inflammation in High-Fat Diet-Fed Mice. Journal of Medicinal Food. 2016;19(3):290-299.
- Kim WS, Choi WJ, Lee S, Kim WJ, Lee DC, Sohn UD, Shin HS, Kim W. Anti-inflammatory, Antioxidant and Antimicrobial Effects of Artemisinin Extracts from *Artemisia L.* The Korean Journal of Physiology and Pharmacology. 2015;19(1):21-27.
- Kirtikar KR, Basu BD. Indian Medicinal Plants. (Dehradun, India: International Book Distributor), 1987;4(2):1398-1400.
- Konowalik K, Kreitschitz A. Morphological and anatomical characteristics of *Artemisia absinthium* var. *absinthium* and its Polish endemic variety *A. absinthium* var. *calcigena*. Plant Systematics and Evolution. 2012;298(7):1325-1336.
- Krebs S, Omer TN, Omer B. Wormwood (*Artemisia absinthium*) suppresses tumour necrosis factor alpha and accelerates healing in patients with Crohn's disease - A controlled clinical trial. Phytomedicine: International Journal of Phytotherapy and Phytopharmacology. 2010;17(5): 305-309.
- Kumar D, Sharma S. Ethanomedicinal Study of Some Plants Species in Kalidhar Forest, Western Shivalik, J&K. International Journal of Scientific Research and Review. 2019;8(6):491-497.
- Kumar S, Paul S, Walia YK, Kumar A, Singhal P. Therapeutic Potential of Medicinal Plants: A Review. Journal of Biological and Chemical Chronicles. 2015;1(1):46-54.
- Kursat M, Clvelek S, Turkoglu I, Tabor S, Gur N. A new species of subgenus *Seriphidium* of *Artemisia L.* (Asteraceae) from Turkey. Turkish Journal of Botany. 2015;39:88-95.
- M.M.P.N.D Sorting *Artemisia* Names. Multilingual Multiscript Plant Name Database. 2006. Available at: <http://www.ars-grin.gov/cgi-bin/npgs/html/taxdump.pl?artemisia> (Accessed on July 26, 2019)
- Mahmoudi M, Ebrahimzadeh MA, Ansaroudi F, Nabavi SF, Nabavi SM. Antidepressant and antioxidant activities of *Artemisia absinthium L.* at flowering stage. African Journal of Biotechnology. 2009;24(8):7170-7175.
- Martínez-Díaz RA, Ibáñez-Escribano A, Burillo J, Heras Lde L, Prado GD, Agulló-Ortuño MT, Julio LF, González-Coloma A. Trypanocidal, trichomonocidal and cytotoxic components of cultivated *Artemisia absinthium* Linnaeus (Asteraceae) essential oil. Mem Inst Oswaldo Cruz, Rio de Janeiro. 2015;110(5): 693-699.
- Marwat SK, Khan MA, Rehman FU, Bhatti IU. Aromatic Plant Species Mentioned in the Holy Qura'n and Ahadith and Their Ethnomedicinal Importance. Pakistan Journal of Nutrition. 2009;8(9):1472-1479.
- Masoudi M, Saiedi M. A Review study of Ethnopharmacology, Phytochemistry, and Anti-inflammatory, antioxidant, and antimicrobial effect of *Artemisia absinthium*. Der Pharmacia Lettre. 2017;9(4):155-162.
- MBG *Artemisia Absinthium*. Missouri Botanical Garden, USA, 2018. Available at: <http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?kempercode=a938>. (Accessed on 11st August 2019).
- Merriam S, Muhamad M. Roles traditional healers play in cancer treatment in Malaysia: implications for health promotion and education. Asian Pacific Journal of Cancer Prevention. 2013;14(6):3593-3601.
- Ministry of AYUSH. The Ayurvedic Pharmacopoeia of India. ([s.l.]: Pharmacopoeia Commission for Indian Medicine & Homoeopathy), 2016. Vol. 6: 9: pp. 38-39.
- Mohammadi A, Sani TA, Ameri AA, Imani M, Golmakani E, Kamali H. Seasonal variation in the chemical composition, antioxidant activity, and total phenolic content of *Artemisia absinthium* essential oils. Pharmacognosy Research. 2015;7(4): 329-334.
- Mohammadian A, Kheiripour N, Moradkhani S, Ataei S, Shayesteh TH, Sedaghat M, Ranjbar A. Antioxidative and hepatoprotective effects of hydroalcoholic extract of *Artemisia absinthium L.* in rat. Journal of HerbMed Pharmacology. 2015;5(1):29-32.
- Moslemi HR, Hoseinzadeh H, Badouei MA, Kafshdouzan K, Fard RM. Antimicrobial Activity of *Artemisia absinthium* Against Surgical Wounds Infected by *Staphylococcus aureus* in a Rat Model. Indian Journal of Microbiology. 2012;52(4): 601-4.

- Moslemi HR, Hoseinzadeh H, Badouei MA, Kafshdouzan K, Fard RM. Antimicrobial Activity of *Artemisia absinthium* Against Surgical Wounds Infected by *Staphylococcus aureus* in a Rat Model. *Indian J Microbiol.* 2012;52(4):601-4.
- Msaada K, Nidhal S, Bachrouch O, Bousselmi S, Tammar S, Alfaiy A, Sane KA, Ammar WB, Azeiz S, Brahim AH, Hammami M, Selmi S, Limam F, Marzouk B. Chemical Composition and Antioxidant and Antimicrobial Activities of Wormwood (*Artemisia absinthium* L.) Essential Oils and Phenolics. *Journal of Chemistry.* 2015.
- Msomi Nontokozo Z. and Simelane Mthokozisi B.C. *Herbal Medicine.* ([s.l.]: Philip F. Builders, IntechOpen), 2018.
- Mukherjee SK. Medicinal plants of asteraceae in india and their uses. Conference: NATIONAL SEMINAR. R.K. MISSION ASHRAM, NARENDRAPUR, KOLKATA, 2006.
- Nadkarni KM. *Indian Meteria Medica.* ([s.l.]: Bombay Popular Prakashan), 1989;1(2): 141-142.
- Nagzami Syed Hassan Unani Metera Medica. 1975, pp. 45.
- NWE *Artemisia* (Genus). *New World Encyclopedia,* 2019. Available at: [https://www.newworldencyclopedia.org/entry/Artemisia_\(genus\)](https://www.newworldencyclopedia.org/entry/Artemisia_(genus)). (Accessed on 21th August 2019).
- Ogbru Omudhome *Artemisia absinthium* (Wormwood). *MedicineNet.* 2019. Available at: https://www.medicinenet.com/healthy_eating_resolutions_better_habits_slideshow/article.htm. (Accessed on August 13, 2019)
- Okuno I, Uchida K, Nakamura M, Sakurawi K. Studies on choleric constituents in *Artemisia capillaris* Thunb. *Chemical and Pharmaceutical Bulletin.* 1988;36(2):769-775.
- Omer B, Krebs S, Omer H, Noor TO. Steroid-sparing effect of wormwood (*Artemisia absinthium*) in Crohn's disease: a double-blind placebo-controlled study *Phytomedicine.* 2007;14(2-3):87-95
- Oyebode O, Kandala NB, Chilton PJ, Lilford RJ. Use of traditional medicine in middle-income countries: a WHO-SAGE study. *Health Policy and Planning.* 2016;31(8):984-991.
- Pan SY, Litscher G, Gao SH, Zhou SF, Yu ZL, Chen HQ, Zhang SF, Tang MK, Sun JN, Ko KM. Historical Perspective of Traditional Indigenous Medical Practices: The Current Renaissance and Conservation of Herbal Resources. *Evidence-Based Complementary and Alternative Medicine.* 2014.
- Panero JL, Crozier BS. Asteraceae. Sunflowers, daisies. *The Tree of Life Web Project,* 2012. Available at: <http://tolweb.org/Asteraceae/20780>. (Accessed on 20 Aug, 2019).
- Petrovska BB. Historical review of medicinal plants' usage. *Pharmacognosy Review.* 2012. 6(11):1-5.
- Petruzzello Melissa List of plants in the family Asteraceae. *Encyclopedia Britannica.* 2018. Available at: <https://www.britannica.com/topic/list-of-plants-in-the-family-Asteraceae-2040400>. (Accessed on August 20, 2019)
- Plant Use *Artemisia absinthium* (Common names). 2011. Available at: https://uses.plantnet-project.org/en/Artemisia_absinthium (Common_names) (Accessed on 08 10, 2019)
- Qasmi Syed Ayub Ali Qawaneen Advia. (Aligarh, India: [s.n.]), 2015, pp. 87-88.
- Qazi MA, Khurshid M. *Herbal Medicine: A Comprehensive Review.* *Journal of Pharmaceutical.* 2016;8(2):1-5.
- Qershi Mhammad Hasan Jami-ul-Hikmat. ([s.l.]: Aijaz Publishing House), 2012, pp. 797-813.
- Qureshi RA, Ahmad M, Arshad M. Taxonomic Study and Medicinal Importance of Three Selected Species of the Genus *Artemisia* Linn. *Asian Journal of Plant Sciences.* 2002;1(6):712-714.
- Rabban al-Tabari (780 850 AD) Abu al Hasan Ali Ibn Sahl Firdaus al-Hikmat/ Paradise of Wisdom / trans. Sambhali Hkm. Awwal Shah. (New Delhi, India: [s.n.]), 2002, pp. 206-210.
- Ramana KV, Singhal SS, Reddy AB. Therapeutic Potential of Natural Pharmacological Agents in the Treatment of Human Diseases. *BioMed Research International.* 2014. pp.1-4.
- Ramawat KG and Mathur M, Dass S. The Chemical Diversity of Bioactive Molecules and Therapeutic Potential of Medicinal Plants. *Herbal Drugs: Ethnomedicine to Modern Medicine.* (Berlin, Germany: Springer), 2009. pp.7-32.
- Rezaeinodehi A, Khangholi S. Chemical Composition of the Essential Oil of *Artemisia absinthium* Growing Wild in Iran. *Pakistan Journal of Biological.* 2008;11(6): 946-949.
- Richard WO. Absinthe and γ -aminobutyric acid receptors. *PNAS USA.* 2000;97(9):4417-4418.
- Rustaiyan A, Faridchehr A, Bakhtiyari M. The third review on the constituents and biological activities of iranian artemisia species. *European journal of pharmaceutical and medical research.* 2016;3(11):20-30.
- Saifuddin Syed Ali Unani Advia Mufrada. ([s.l.]: Turkey Urdu Burea), 1990. pp. 56-68.
- Sambamurty A V S S *Dictionary of Medicinal Plants.* ([s.l.]: CBS Publisher & Distributors), 2006. pp. 33-34.
- Santić Z, Pravdic N, Bevanda M, Galic K. The historical use of medicinal plants in traditional and scientific medicine. *Psychiatria Danubina.* 2017;4(4):787-792.
- Sato A. Revealing the popularity of traditional medicine in light of multiple recourses and outcome measurements from a user's perspective in Ghana. *Health Policy and Planning.* 2012;27(8): 625-637.
- Sen S and Chakraborty R. Revival, modernization and integration of Indian traditional herbal medicine in clinical

- practice: Importance, challenges and future. *Journal of traditional and complementary medicine*. 2017;7(2): 234-244.
- Shafi G, Hasan TN, Syed NA, Al-Hazzani AA, Alshatwi AA, Jyothi A, Munshi A. *Artemisia absinthium* (AA): a novel potential complementary and alternative medicine for breast cancer. *Molecular Biology Reports*. 2012;39(7):7373-7379.
- Shah NC. The Economic and Medicinal *Artemisia* species in India. *THE SCITECH JOURNAL*. 2014;1(1): 29-38.
- Sharma P, Manchanda R, Goswami R, Chawla S. Biodiversity and Therapeutic Potential of Medicinal Plants. *Environmental Concerns and Sustainable Development*. (Singapore: Springer), 2019, pp. 27-44.
- Sharopov FS, Sulaimonova VA, Setzer WN. Composition of the Essential oil of *Artemisia absinthium* from Tajikistan. *Records of Natural Products*. 2012;6(2):127-134.
- Sherrin Zoe. Southern Cross University. *Artemisia absinthium*, 2008. Available at: <https://www.scu.edu.au/southern-cross-plant-science/facilities/medicinal-plant-garden/monographs/artemisia-absinthium/>. (Accessed on 22nd Aug 2019).
- Singh Jagdev. *Artemisia absinthium* (Wormwood), *Ayur Times*, 2015. Available at: <https://www.ayurtimes.com/artemisia-absinthium-wormwood>, (Accessed on 13th of Aug 2019)
- Singh R, Verma PK and Singh G. Total phenolic, flavonoids and tannin contents in different extracts of *Artemisia absinthium*. *Journal of Complementary Medicine Research*. 2012;1(2):101-104.
- Singh S, Singh V, Yadav S, Singh R, Baksh H, Singh BK, Pandey R. Medicinal plant: an emergence of natural medicine for human being. *Intl J Engg. Sci Adv Research*. 2018;4(2):28-34.
- Tariq KA, Chishti MZ, Ahmad F, Shawl AS. Anthelmintic activity of extracts of *Artemisia absinthium* against ovine nematodes. *VETERINARY PARASITOL*. 2009;160(9):83-88.
- The J & K. Medicinal Plants Introduction Centre *Artemisia absinthium* Seeds for sale/ Kuth root- *Saussurea costus*. *Medicinal Plants in India*, 2013. Available at: <http://jkmpic.blogspot.com>. (Accessed on 26 July, 2019)
- TYROCITY Family: Compositae (Asteraceae). TYROCITY.COM, 2018. Available at: <https://notes.tyrocity.com/family-compositae-asteraceae/> (Accessed on 20th Aug 2019).
- USDA *Artemisia absinthium* L. United States Department of Agriculture. 2019. Available at: <https://plants.sc.egov.usda.gov/java/>. (Accessed on 26 July, 2019).
- Ved DK, Sureshchandra ST, Vijay V, Kumar AS, Venugopal SN, Somashekhar BS, Sumanth MV, Begum N, Rani S, Surekha KV, Desale K. ENVIS Plant Details for *Artemisia Absinthium* L. ENVIS Centre on Medicinal Plants. India, 2019. Available at: <http://envis.frlht.org> (accessed on 26th July 2019).
- Vieira Tatiana M. [et al. Antimicrobial Activity of *Artemisia absinthium* Against Surgical Wounds Infected by *Staphylococcus aureus* in a Rat Model. *Journal of Essential Oil Bearing Plants*. 2017;1(20):123-131.
- Wani Humara , Shah Shakeel A. and Banday Javid A. Chemical composition and antioxidant activity of the leaf essential oil of *Artemisia absinthium* growing wild in Kashmir, India [Journal] // *The Journal of Phytopharmacology*. - 2014. - 2: Vol. 3. - pp. 90-94.
- WebMD Wormwood [Online]. 2019. Available at: <https://www.webmd.com/vitamins/ai/ingredientmono-729/wormwood>. (Accessed on August 13, 2019)
- Wei X, Xia L, Ziyayiding D, Chen Q, Liu R, Xu X, Li J. The Extracts of *Artemisia absinthium* L. Suppress the Growth of Hepatocellular Carcinoma Cells through Induction of Apoptosis via Endoplasmic Reticulum Stress and Mitochondrial-Dependent Pathway. *MOLECULES*. 2019;24(5):913.
- William D, Warden CJH, David H. *Pharmacographia Indica*. (New Delhi, India: Shristi Book Distributors), 2005, pp.288-292.
- Yasmeen D, Mouhouche F, Canela-Garayoa R, Delpino-Ruis A. Phytochemical Analysis of Methanolic Extracts of *Artemisia absinthium* L. 1753 (Asteraceae), *Juniperus phoenicea* L., and *Tetraclinis articulata* (Vahl) Mast, 1892 (Cupressaceae) and evaluation of their biological activity for stored grain protection. *Arabian Journal of Science and Engineering*. 2016;41(6):2147-2158.