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A Potent Unani Drug Marzanjosh [*Origanum Majorana* L]- Therapeutic Application and Pharmacological Review

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ABSTRACT

Origanum majorana L. (Marzanjosh) is a perennial aromatic herb widely used in the Unani system of medicine for the treatment of various ailments, including digestive, respiratory, neurological, and inflammatory disorders. The plant is characterized by bushy, multi-branched stems, ovate leaves, and small tubular flowers, and is native to the Mediterranean region. It is cultivated primarily for its aromatic leaves and essential oils.

Phytochemical studies have identified monoterpenes (terpinen-4-ol, thymol, carvacrol), phenolic acids (rosmarinic, caffeic), flavonoids (quercetin, luteolin, apigenin), triterpenes (ursolic, oleanolic acid), and plant sterols (β-sitosterol, stigmasterol) as key bioactive constituents. These compounds contribute to diverse pharmacological activities, including antimicrobial, antioxidant, anti-inflammatory, neuroprotective, hepatoprotective, anticancer, gastroprotective, and cardioprotective effects. In vitro studies show thymol and carvacrol exert cytotoxic effects against hepatocarcinoma cells, while essential oils reduce inflammatory mediators and oxidative stress.

In Unani medicine, Marzanjosh is described as hot and dry in temperament, with multiple therapeutic actions such as anti-inflammatory, diuretic, emmenagogue, and organ-protective effects. Scientific evidence supports many of its traditional uses, highlighting *O. majorana* as a promising natural therapeutic agent for the prevention and management of various diseases.

Keywords: *Origanum majorana, Marzanjosh, Unani medicine, Phytochemicals, Antioxidant, Anti-inflammatory, Antimicrobial*

INTRODUCTION:

Marzanjosh is an unani drug used unani system of medicine since ancient times for the therapeutic purposes for various ailments. The dried leaves of the herb used in medicinal products. It has aromatic, sharp, bitter, spicy resemble camphor like flavored herb. Flowers are small, purple or white, few too many, arranged in spikelets". It is a bushy, half-hardy perennial sub-shrub, growing to a height of 1 to 2 feet, with descending, multibranched stems, the stems "taking root as they touch the ground. exuding a fragrance when crushed,Its called 'Marjolaine' of French. The Persian word means "mouse ear" a name given to it due to its appearance, a greyish rounded shape of the leaves, which is more evident in Persian variety[2] with a self-supporting growth habit, This plant is distributed around the Mediterranean regions, as Morocco, Algeria, Egypt, Spain, and Portugal (Ietswaart, 1980).[3]

Taxonomy [1]

Kingdom: Plantae; Subkingdom: Viridiplantae; Infrakingdom: Streptophyta; Superdivision: Embryophyta ;Division: Tracheophyta; Sub-division: Spermatophytina;Class: Magnoliopsida;Super-order: Asteridae; Order: Lamiales; Family: Lamiaceae; Subfamily: Nepetoideae ;Tribe: Mentheae ; Genus: Origanum L. ;Species: Origanum majorana.

Vernaculars[1]:

Unani: Aabqar , Samsaq , Marzanjosh English Sweet majorana, marjoram Franch Marjolaine Arabic Mardakusch, Mizunjush, shamsaq, sanqur, habaqul qata Persian Marzjosh, Mardqoosh Urdu Marzanjosh, Marva khusha Indian bazar Marwa.

Ethanobotanical Description :

It is an aromatic, branched, perineal, annual plant. Sweet marjoram is a native of Portugal and Palestine, the flower is a favourite of Hindus. It is an annual, perennial, and shrubby aromatic herb and widely found in all European countries (except in the extreme north), Portugal, Spain, Afghanistan,

China, Nepal, Pakistan, and extend eastward though Russia, Siberia, and west Asia generally, to the confines of India. In India, it is found in Jammu and Kashmir, Himachal Pradesh, Utter Pradesh and Sikkim[1]

Morphology

Origanum majorana L. is a bushy half hardy perennial sub shrub that grows as annual. It is cold sensitive, frost tender aromatic herb that grows up-to 30-60 cm height. It has descending multi-branched reddish square stems that spill over to create a mound.Stems are straight having weak, hairy, round and green with red speckles. Leaves are smooth, simple, petiolate and ovate to oblong-ovate, grey green in colour arranged opposite to each other on a square stem. The texture is extremely smooth due to presence of numerous hairs. They are 0.5-1.5 cm long and 0.2-0.8 cm wide, with obtuse apex, entire margin, symmetrical but tapering base and reticulate venation16. Marjoram have tiny, two lipped, tubular, white or pale pink flowers with grey green bracts that bloom in spike like clusters from mid to late summers (June to September). They are less than 0.3 cm long and arranged in burr-like, 1.3 cm long heads. Flowers are hermaphrodite in nature17. Seeds are minute, oval, dark and brown in colour that ripens from August to September. It has sub–cylindrical, longitudinally wrinkled tap roots with transverse fissures; 0.2-0.6 mm in diameter. The

outer surface of root is dark brown while light brown internally with several long rootlets and root scars are also present. Fractures being long, irregular and fibrous having aromatic odour and non-bitter[4]

CULTIVATION, COLLECTION AND PROPAGATION ::

Table 1

Constituent	Chemical Class	Reported Pharmacological Activities	References
Terpinen-4-ol	Oxygenated monoterpene	Antimicrobial, antifungal, anti-inflammatory	Fidan et al., 2019 [6]; Mahboubi et al., 2019 [7]
Cis-Sabinene hydrate	Monoterpene derivative	Antimicrobial, antioxidant	Chalchat et al., 1998 [8]
Carvacrol	Phenolic monoterpene	Strong antibacterial, antifungal, antioxidant	Ait Said et al., 2023 [9]
Thymol	Phenolic monoterpene	Antimicrobial, antifungal, antioxidant, anti-inflammatory	Mahboubi et al., 2019 [7]
1,8-Cineole	Oxygenated monoterpene	Anti-inflammatory, expectorant, antimicrobial	Fidan et al., 2019 [6]
Rosmarinic acid	Phenolic acid	Potent antioxidant, anti-inflammatory, hepatoprotective	Maggi et al., 2024 [10]; Wojdyło et al., 2007 [11]
Caffeic acid	Phenolic acid	Antioxidant, cardioprotective, antimicrobial	Wojdyło et al., 2007 [11]
Quercetin	Flavonoid	Antioxidant, anti-inflammatory, anti-cancer	Bina et al., 2015 [12]
Apigenin	Flavonoid	Antioxidant, anti-inflammatory, neuroprotective	Bina et al., 2015 [12]
Luteolin	Flavonoid	Antioxidant, anti-inflammatory, anti-cancer	Bina et al., 2015 [12]
Ursolic acid	Triterpene	Anti-inflammatory, hepatoprotective, anticancer	Bina et al., 2015 [12]
Oleanolic acid	Triterpene	Antioxidant, hepatoprotective, anti-inflammatory	Bina et al., 2015 [12]
β-Sitosterol	Plant sterol	Anti-inflammatory, hypocholesterolemic, immunomodulatory	Choudhary et al., 2019 [13]
Stigmasterol	Plant sterol	Antioxidant, hypolipidemic, anti-inflammatory	Choudhary et al., 2019 [13]

PHARMACOLOGICAL ACTIVITIES OF *ORIGANUM MAJORANA*:

Table 2

Pharmacological Activity	Evidence/Findings	Reference
Antimicrobial	Essential oil rich in carvacrol, thymol, and terpinen-4-ol showed antibacterial and antifungal activity.	Fidan et al., 2019 [6]; Mahboubi & Kazempour, 2019 [7]; Ait Said et al., 2023 [9]
Antioxidant	Rosmarinic acid, caffeic acid, and flavonoids (quercetin, luteolin, apigenin) exhibited strong free radical scavenging activity.	Wojdyło et al., 12007 [11]; Bina et al., 2015 [12]
Anti-inflammatory	Essential oils and extracts reduced inflammatory mediators (COX, TNF-α, IL-6) in experimental models.	Ait Said et al., 2023 [9]; Bina et al., 2015 [12]

Pharmacological Activity	Evidence/Findings	Reference
Neuroprotective	Flavonoids and rosmarinic acid demonstrated neuroprotective and antidepressant-like effects.	Bina et al., 2015 [12]
Gastroprotective	Methanolic extract exhibited anti-ulcer activity in animal studies.	Choudhary et al., 2019 [13]
Anticancer (in vitro)	Extracts showed cytotoxic effects against certain cancer cell lines.	Bina et al., 2015 [12]
Hepatoprotective	Ursolic acid, oleanolic acid, and rosmarinic acid reported protective effects on liver tissue.	Bina et al., 2015 [12]
Cardioprotective / Hypolipidemic	Plant sterols (β-sitosterol, stigmasterol) and phenolic compounds improved lipid metabolism and reduced oxidative stress.	Choudhary et al., 2019 [13]

MAHIYAT-E-DAWA [UNANI DESCRIPTION]:

Marzanjosh is one of the oldest drugs described in Unani system of medicine. Descoridus (4090BC), Ibn-e-Sina 1905, Ibn-e-Baitar, 1291H and many other ancient Unani physician described in detail in their books. Marzanjosh is a kind of Marwa, it is written in Kashful Lughat, that Marzanjosh is a Arabic word which derived from Persian word “Mazangosh” in Persian Marzah is known for mouse, and gosh is called as ear, it means ear of mouse. Its plant resembles to the plant of sweet basil (Rehan), its seed is like seed of Rehan, leaves are similar to leaves of Suddab. It is cultivated in Jazeera “Urs”. Its flowers are in whitish red in colour, it has a very ;significant smell. 14,15,16

Hisase Mustamala (parts used): Leaves and seeds 17

MIZAJ: HOT20 DRY20 15,16

HOT30 DRY30 17

Mizal (Temperament); Ha(2) Yabis (2)177 Har(2) Yabis (1)Harl Yabis (1)141

Pharmacological action in Afa'al Unani Medicine: 76,110,141.177

Muhallil, Jaazib, Mulattif, Mufatteh, Sudad, Mufattit-e-Hasat, Muqawwi Basar

Istemaal (Uses): 110,176,177

Suda-e-Balghami, Suda-e-Rechi, Suda-e-Barid, Malankhuliya Miraqi, Nazla wa Zukan, Sara, Laqwa, Khafqan, Waja'us Sadr, Zeequn Nafas, Balghami share, Istisqa, Waja'ul Mufasil, Usrul baul.

Dosage: 5-7 gm 177

Badal (Substitute): 147 Afsanteen, Barge Chameli, Siyah Mirch, tulsi

Muzir(side effects): 177 Kidney, Urinary bladder, Brain

Musleh (Corrective): 177 Tukhme khurfa, Kasni, Nilofer

Chemical constituents of fennel: 89,135,138,142,176

Herb contains about 3% volatile oil, flavonoids and Triterpenoids. Sabinene hydrate80 Sabinene linalool, carvacrol, thymol97,133,177 estrogole, terpens, luteolin-7-glucoside, diosmetin-7-glucoside, apigenen-7-glucoside, rosmarinic acid, caffeic acid, ursolic acid¹ 37 oleanolic acid, sterols, diosmetin, vitexin, orientin, geranyl acetate, P-cymen, Terpinene, Caryophyllene, Spathulenol, Germacrene, a-Caryophyllene 143

UNANI ACTIONS(AFAAL): 14,15,16,17,18

Muhallil-e-Awram (Anti inflammatory) , Mujaffif(desiccant),,Mulattif (Demulscent),Jaazib (Desiccant), kasire riyah (carminative) ,Mushtahi (Appetizer) Qabiz (Astringent) , Jali(Detergent) ,Musakkin,Dafe khafqan ,dafe sarfa, Mufattite Hasat (Lithotriptic) , Muqawwi jigar (liver tonic) , Mufatteh Sudad (Deobstruent) ,Mudir-e-haiz (emmenagogue) ,Muqawwi Basar (Eye Tonic) , Munaffise balgham (expacturant) , Muharrik (stimulant),Munaqqi dimagh,Muqawwi-e-dimagh (Brain tonic) , Tiryaq (Antidote) , muqaawwi-e- qalb(cardiac tonic), Musaffi Khoon (blood purifier) , Mudirre-e-baul (diuretic).

CLINICAL USES (ISTEMALAT-E-ILAJI): 14,15,16,17,18

Sudae-e-reehi (Headache due to excessive production of gases) Shaqeeqa (migraine) Sudae-e-Balghami (Phlegmatic headache) ,Sudae-e-Barid (headache due to excessive cold) ,Zofe jigar Khafqan (Palpitation), Nuzolul ma’aa ,zoefe basar,, Wajau’s Sadr (Chest pain) , Rafeequddin, Zeequn Nafas (asthma) Nazla wa Zukam (coryza and catarrh) Malankhuliya Miraqi (psychoneurosis) Sara (epilepsy) Laqwa (facial palsy) Tahabbuje reehi wa balghami Ibne Baitar, Usrul bawl (Dysuria) wajaul uzn (ear ache) Mufatteh-e-sudad-e-dimagh (Deobstruent of Brain) Falij (Paralysis) Istisqa ,Kuzaz (Tetanus) .

REPORTED PHARMACOLOGICAL ACTIONS:

Anti cancer activity: 19

Anti-the EO and its two constituents, thymol and carvacrol, explicated promising results against hepatocarcinoma cells (IC50), estimated to be 236, 289, and 48 mg/L, respectively. Conversely, they showed higher values of IC50 regarding the inhibition of health renal cells, which were estimated to be 310, 940, and 90 mg/L, respectively. Citral and limonene showed a cytotoxic effect (IC50) against renal health cells estimated to be 32 and 120 mg/L, as compared to 35 and 294 mg/L in the case of hepatocarcinoma cells. Therefore, these two substances are not recommended as potential anticancer therapeutic agents.

Anti-inflammatory activity: 20

Anti-inflammatory activity of O. vulgare has been investigated in a number of studies both in cell and animal models. Gunawardena et al. (2014) tested more than 100 common food plants (including oregano) and mushrooms by in vitro cell based bioassays, namely the activation of murine N11 microglia an RAW 264.7 macrophages.

Anti oxidant activity:11,12

This study analyzed 32 selected herbs, including Origanum species, for their phenolic content and antioxidant activity. The results showed that herbs with higher phenolic content exhibited stronger free radical scavenging properties, suggesting significant potential for health-promoting effects through oxidative stress reduction.

This review focused on Origanum majorana (sweet marjoram), detailing its ethnopharmacological uses, phytochemical constituents, and biological activities. The study highlighted antimicrobial, anti-inflammatory, antioxidant, anticancer, and neuroprotective effects, emphasizing the therapeutic potential of this herb in traditional and modern medicine.

Other reported actions are also mentioned in table2.

Conclusion

Origanum majorana L. (Marzanjosh) is a bioactive medicinal herb with validated traditional uses in Unani medicine. Its diverse phytochemicals contribute to antimicrobial, antioxidant, anti-inflammatory, hepatoprotective, neuroprotective, and anticancer activities. Scientific evidence supports its potential as a natural therapeutic agent for multiple systemic ailments. Further clinical studies are needed to confirm its efficacy and safety in humans and to promote its integration into modern medicine.

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