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Atrilal (Ammi Majus Linn.) An Herbal Plant: A Comprehensive Review of The Medicinal Uses



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ABSTRACT

Ammi majus L. species, which belong to the *Umbellifereae* family, included bioactive substances with considerable biological properties (namely flavonoids and coumarins). Previous pharmacological studies revealed that *Ammi majus* was effective in the treatment of psoriasis, vitiligo, and bactericidal, fungicidal, insecticidal, larvicidal, moluscicidal, nematocidal, ovicidal, viricidal, antiviral, antimicrobial, antioxidant, relaxant, cardiovascular, hypotensive, and herbicidal activities. The majority of people in rural regions utilise alternative medicine to cure ailments because they think natural medicine is always safe and cost-effective. *Ammi majus* (*A. majus*) is a traditional herbal medication used to treat a variety of chronic conditions in the Gulf area. The plant extracts and individual phytochemicals shown potential efficacy against a variety of biological processes. The specific plant species yielded more than fifty bioactive phytochemicals. However, on the selected plant species, many fundamental research factors connected to biological activities, such as essential oils, animal studies, and clinic investigations, remain unknown. Efficacy of *Ammi majus* in vitiligo, leukodermis, and other conditions has been studied in several clinical trials.

INTRODUCTION:

Atrilal (*Ammi majus* Linn.) is an important Unani medicine. Atrilal (*Ammi majus* Linn) is native of Egypt, and is widely distributed in Europe, Mediterranean and West Africa, introduced into India, from Egypt, an erect, glabrous, annual herb, naturalized in Rajasthan Himachal Pradesh, Jammu. Drug consists of dried fruit of *Ammi majus* L. [1, 2, 3]

Bioactive compounds with substantial biological activity were found in Ammi species. Traditional medicine has employed the dried mature fruits of *Ammi majus* to treat skin problems such as eczema, psoriasis, and vitiligo, when allopathic medicine has little impact or produces harmful adverse effects.

According to, Unani physician Atrilal (*Ammi majus* Linn.) in their treatises e.g. Majoosi (930-994 AD) in *Kamil-us sana*, Zakariya Raazi (854-925 AD) in *Al Hawi al Kabir*, Ibn Sina (980-1037) in *Al qanoon fit tib*, Daood Antaki (1543-1599 AD) in *Tazkira-Ulul-Albab*. Ibn Baitar (1197-1248) in *Al-Jami-ul-Mufradat-al-Advia-wal-Aghzia*.

Atrilal is a diuretic that is used to treat leprosy, kidney stones, and urinary tract infections [4]. Because the plant species include considerable active phytochemicals including flavonoids, coumarins, alkaloids, terpenoids, amino acids, and essential oil with therapeutic potential, Atrilal has been utilised to cure human diseases for millennia as remedies or prevention of maladies [5, 6,7,31] Leprosy, kidney stones, and infections are just a few of the ailments that the plant is used to cure [8,9,10]. Bactericidal, fungicidal, insecticidal, larvicidal, molluscicidal, nematocidal, ovicidal, viricidal, and herbicidal properties are all found in furocoumarins. [11, 12, 31]

Synonymous: *A. Walter*, *A. glaucifolium* (L), *A. heterophyllum* Lowe, *A. intermedium* (DC.) Gren., *A. isophyllum* Lowe, *A. laciniatum* Godr., *A. serratum* Mutel., *A. tenue* Ball., *A. tenuifolium* Lowe, *A. procerum* (Lowe).

Medicinal used: Atrilal with Aqarqarha and honey beneficial for *Baraş* and *Bahaq*. [13, 15, 16]

Seeds of Atrilal mixed with honey use for *Baraş* and *Bahaq*. [13, 16]

Atrilal (*Ammi majus*), Turbud (*Operculina turpethum* Linn.), Zanjabeel (*Zingiber officinale* Roscoe), Aqarqarha Aqarqarha (*Anacyclus pyrethrum* DC), mixed with honey use for *Baraş*. [13,14,16]

Seeds of Atrilal, seeds of shaqaiq al-nomaan, Aqarqarha (*Anacyclus pyrethrum* DC), jund bedaster (Castoreum), with honey orally thereafter honey water is of use for *Baraş* (vitiligo).^[13]

Atrilal with water locally continue for 15 days useful for *Baraş* (vitiligo).^[13]

Atrila(Ammi majus), Barg-e-suddab and skin of snake mixed with wine useful for *Baraş* (vitiligo).^[13, 15]

Atrilal (*Ammi majus*), with honey orally useful for *qolan* (Colicky pain)^[13, 15]

Atrilal (*Ammi majus*), with juice of *Habb-ul-Aas* (*Myrtus communis*) orally helpful in dog bites.^[13]

It was also recommended for vitiligo treatment after taking atrilal orally or locally at the afflicted area of the body was exposed to sunlight or sat in the sun for a length of time until sweating began.^[13]

Scientific Classification:^[17]

Kingdom: *Plantae*

Sub-kingdom: *Vascular plants*

Super division: *Seed plants*

Division : *Flowering plants*

Class: *Dicotyledons*

Order: *Apiales*

Family: *Apiaceae*

Genus: *Ammi*



ATRILAL



Vernacular Names ^[13, 2, 3]

Unani Tibbi Name: *Hiz al -shayateen, Rejl al- Ghorab, Rijl al- tair*

English: *Bishop's weed Greater Ammi, fals bishop weed ^[18] bullwort, greater ammi ^[3], False Queen Anne's lace ^[18].*

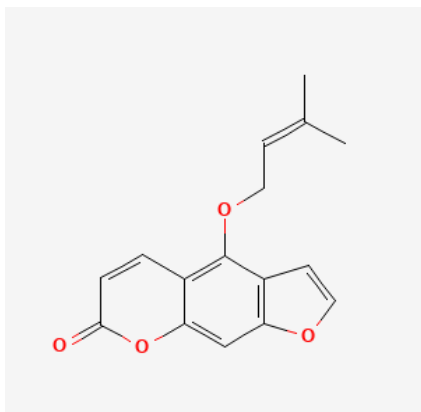
Hindi: *Atrilal*

Urdu: *Atrilal*

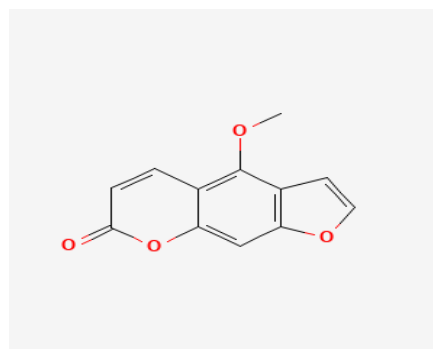
Botanical Name *Ammi majus* Linn. ^[1, 2]

Family Name *Umbelliferae* ^[1, 2]

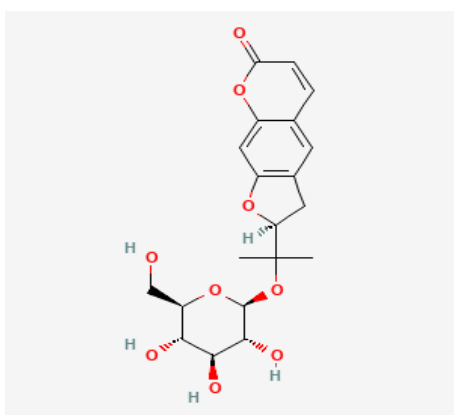
Chemical constituent Ammoidin, Ammajin, Marmesinin, Marmesine, Bargapten, Xanthoxin, Imperatorin, Isopimpinellin, methoxalen. Coumarinic acid, isoimperatorin, Majurin, ammin, Alloimperatorin, ammirin, methoxalen, furanocoumarins. umbelliferone, psoralen. ^[1, 2]



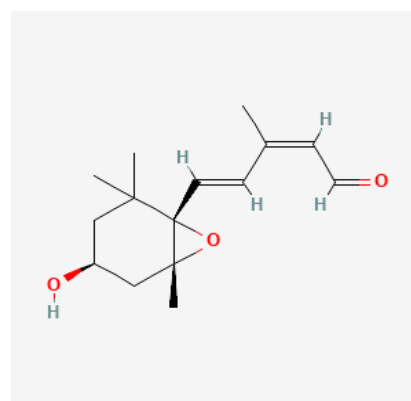
Isoimperatorin:68081



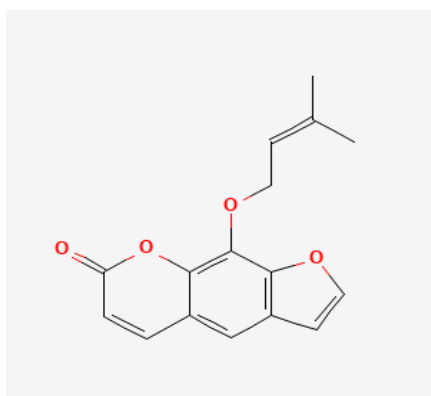
Bergapten:2355



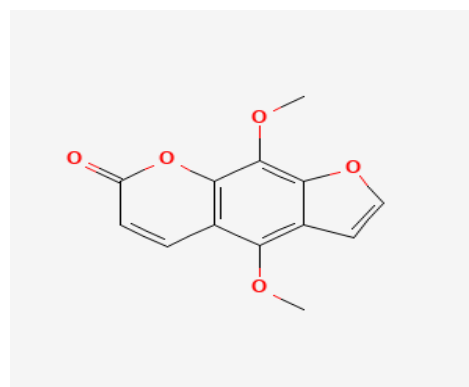
Ammijin:216283



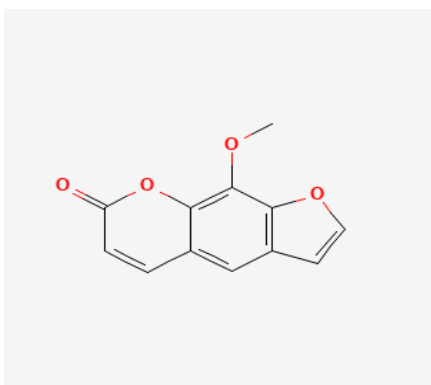
Xanthoxin:5282222



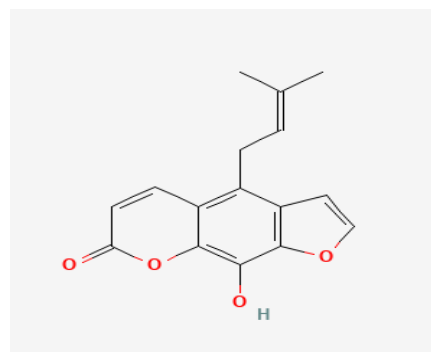
Imperatorin:10212



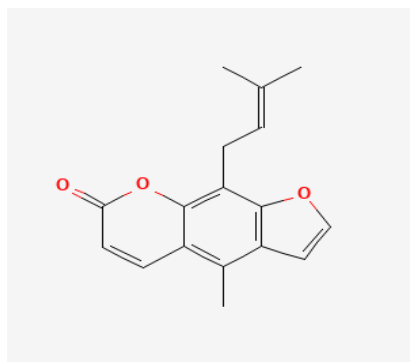
Isopimpinellin:68079



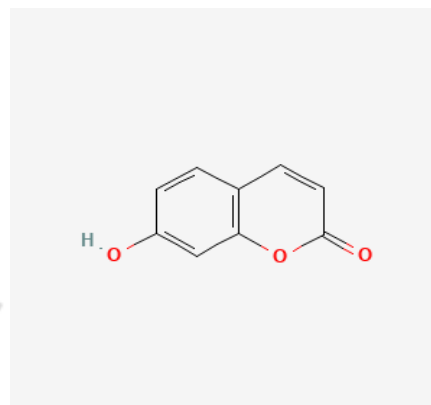
Methoxalen:4114



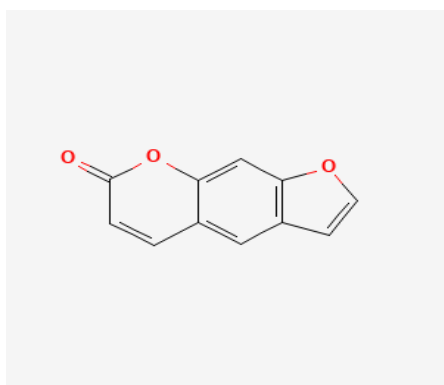
Alloimperatorin:69502



Furanocoumarin:139586385



Umbelliferon:5281426



Psoralen:6199

Doses: 3-1/2 gm, 4 ½, 10 ½^[13]. 5 ½, 8 ½^[19]

Part of used Fruit^[1, 2, 3]

Mizāj Hot 3° Dry 3°^[13] Hot 2 Dry 2°^[3]

Af'aal (Action)

Muḥallil (Resolvent), *Mulaṭṭif* (Demulscant), *Jālī* (Detergent), *Mujaffif* (Desiccant), *Muaffin*, *Tanaffus* (Branchodialator)^[13], *Mufatteh* (Dilator)^[13] *Kasir-i-Riyāḥ* (carminative)^[13], *Sarī-al-Nafūkh*^[163], *Musqiṭ-i-Janīn* (Abortifacient)^[19], *Mukharij-i-Balgham* (Phlegmagogue)^[13], *Muqarrah*^[16].

Iste'mālāt (Therapeutic used) *Bahaq*, *Baras*, *Qolanj*^[3], *Mufattih-i-Haṣāḥ* (Lithotriptic)^[19], *Mudirr-i-Hayḍ* (Emmenagogue),^[13] *Mudirr-i-Bawl* (Diuretics),^[13] *Qātil-i-Dīdān-i-Am'ā* (Vermicidal),^[13] *warm-I Tihāl*,^[13] *Yaraqān* (Juandice)^[13], *Mufattih-i-Urūq*^[13]

Substitute (Baḍl) *Nakchikni*^[14]

Corrective (Muṣleḥ) *Daarchini/ zanjabeel*^[13, 14]

Toxic (Muzir) *Warm-i- Kulliyya* (Nephritis)^[13, 14]

Unani formulation *Zimad-i Baras*^[20], *Safuf-i-Baras*^[20],

Habb-i Ayaraj (for evacuation)^[20] *Majun Atrilal*, *Dawa-e-Baras*,

Marham Atrilal^[21]

Scientific report:

Dermatological-activity: -

A number of studies have looked at the efficacy of *Fructus Ammi majus* and xanthotoxin in the treatment of vitiligo, psoriasis, and hypopigmentation *tinea versicolor*.

These fruits are commonly employed in the treatment of vitiligo.^[2, 22, 23]

Patients with leukodermis who were given oral *Ammi majus* powdered fruits and exposed the afflicted areas to direct sunshine for 1hour experienced symptoms of itching, redness,

oedema, vesiculation, and leaking in the leukodermic patches. The afflicted skin developed deep dark pigmentation over the course of a few days. [24]

On 88 vitiligo patients, 0.75 g of powdered fruit was given three times daily after meals at A.K. Tibbiya College Hospital, Aligarh Muslim University Aligarh, and a lotion of whole fruit powder in viger (1:2) was applied twice daily locally over the vitiliginous region. Following 1.5 hours after the morning dose, the affected area was exposed to sunlight for 15 minutes. In 11 patients, the response was excellent, in 50, it was fair, and in 27 patients, there was no change. [2]

Many other writers have found comparable outcomes with Ammi majus and its furanocoumarins to treat psoriasis, vitiligo, and *tinea versicolor*. [25].

Anti-microbial activity: -The extracts of tissue culture of the plant showed antimicrobial action against *E. coli*, *Staphylococcus aureus*, and *Candida albicans*. [2]

Anti-helmenthic activity: The ethanolic and hexane extracts of the leaves have little effect on earthworms. When the soil was replenished with leaves, the population of *Meloidgyne incognite*, a tomato-infecting fungus, decreased. [2].

Hepatotoxic activity: The effect of oral administration of imperatorin psoralen (derivative), isolated from the fruit pericarp, on normal liver function in rabbits was investigated using an emulsion with gum tetracanth. Bromosulphalein retention, hippuric acid excretion, albumin/globulin ratio, and body weight were among the assays used. Only the hippuric acid test was impacted. Imperatorin has a hepatotoxin effect, as evidenced by the considerable decrease in hippuric acid excretion after therapy. The flocculation of cephalin and cholesterol, as well as the turbidity of thymol, were both within normal limits. [2]

Anti-oxidant activity: -

The antioxidant activity of all polarity plant extracts was evaluated using several in vitro and in vivo methods [26]. Previous antioxidant activity findings for the specific plant species revealed that all produced extracts had considerable antioxidant activity when compared to several conventional models. Among them, majority results claimed that strong antioxidant activity was obtained from the most polar extract e.g., methanol

extract. However, prior research on the same species by our group revealed that nonpolar extracts had the most activity.^[27]

Anti-inflammatory activity: In a dose-dependent manner, the alcoholic extract of the Ammi majus seed demonstrated anti-inflammatory efficacy by considerably decreasing rat paw edoema.^[28]

Antidiabetic activity: The anti-diabetic effect of several extracts of this plant (Ammi majus) was varied. The majority of their findings revealed that plant extracts with the greatest polarity had the strongest antidiabetic effect. That is, the extract with the greatest polarity includes the majority of the anti-diabetic activity-guided phytochemicals. As a result, the overall conclusion is that the antidiabetic effect of plant extracts is directly related to their polarity.^[29,30]

Conclusion: Atrilal (Ammi majus Linn) is an ancient Egyptian medicinal herb used to treat vitiligo, according to Eber's papyrus. It was employed by academics for de-pigmentation of skin in the early era, and the technique of its efficacy in skin problems was kept secret with the family. Unani academics, which were well aware of its photosensitivity responses, also enter the situation. Atrilal is a highly reactive medication that induces skin blistering and has Melanoprotective properties. As a result of its high reactivity, it's possible that its temperament is hot and dry in the third degree. CCRUM has been working in this field over the past half-century, developing numerous unani coded formulations such as UNIM-001, UNIM-002, UNIM-003, UNIM-005, UNIM-007, and so on. Many clinical investigations were done by the Council, with positive outcomes in cases with vitiligo. In the future, council should consider atrilal (Ammi majus Linn.) and its compound formulation for vitiligo. Ammi majus Linn. has active ingredients imperatorin, bergaptens, marmesin, 8-methoxypsoralen Ammoidin (xanthotoxin) with depigmentation characteristics, according to many phytochemical investigations. The chosen plant has long been utilised as a folk medicine in the Gulf area for the treatment of chronic ulcers and menstrual irregularities. Because of has historical significance. A large number of phytochemicals have previously been identified from the plant species in question. Some of the extracted phytochemicals had notable pharmacological actions, and the extracts from this species had a variety of pharmacological activities as well. Plant extracts and purified phytochemicals might be utilised to treat a variety of disorders as a natural, safe treatment.

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