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Aatrilal (*Ammi majus Linn*): A Potent Drug For Vitiligo

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ABSTRACT

Aatrilal (Ammi majus Linn) is an important unani drug for treatment of vitiligo. It belongs to family Apiaceae. It is originated in Egypt. But now it is successfully cultivated in India. It is the principal commercial source of Xanthotoxin. Xanthotoxin is used in the treatment of Vitiligo (Leucoderma).It is also used as diuretic, blood purifier, detergent, emmenogogue, and has antispasmodic and anti inflammatory properties. In Unani system of Medicine Aatrilal is used both internally as well as externally in the patients of Bars (Vitiligo). A number of clinical studies have been carried out with the Aatrilal in the treatment of vitiligo. These trials have shown significant results.

Keywords: Aatrilal, Ammi majus, vitiligo, leucoderma

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INTRODUCTION

Aatrilal consists of the dried ripe fruits of *Ammi majus L*. (Apiaceae) [5,8].*Ammi majus*, commonly known as bishop's flower , originates in the Nile River Valley (Egypt) and is widely distributed in Europe, Mediterranean and West Africa .Attempts to introduce the herb into India were first made at the Forest Research Institute, Dehradun. However, trials at chakrata gave poor fruit yield due to heavy rainfall. But now it is being cultivated at Jammu, Delhi, Aligarh and Himachal Pradesh etc[1, 3, 5,13]. Aatrilal is a Greek or Barbari word meaning Rijlul Tair (leg of bird).In egypt it is famous as "Rijlul Ghurab". Till the period of Avicenna (980-1037 AD) this drugs has not been discovered [4,6,9]. In Ayurvedic system of Medicine it is called Vishnag. In ancient Egypt this plant was used to treat skin diseases. This is widely used for the treatment of skin disorders such as psoriasis and vitiligo (acquired leukoderma). It is also used as a diurtetic, emmenogogue, anthelmentic.[5,9,10] It contains large amounts of furanocoumarin, xanthotoxin, and bergapten. The furanocoumarin in the plant can cause phyto photodermatitis and hyperpigmentation.

Period of Occurrence

Sowing is done in the month of October, flowering ranges from January to February. The fruit attains maturity by April.

Description

Annual; 0.9-1.5 m.high; stem sub glaucous, striate; leaves alternate, bipinnately divided ,lobes oblong, acutely serrulate; inflorescence a compound umbel, primary rays of umbel sometimes 5cm long slender, secondary rays 2-5cm long scattered with few minute reticulate points; flowers bisexual, polygamous and bracteates; calyx teeth obsolete or small; petals obovate with an inflexed point, the exterior ones frequently longer; stamens epigynous; ovary inferior , 2 celled stigma capitates; fruit laterally compressed, oblong smooth; cremocarp with slender prominent ribs; the two mericarps separated by a carpophores; seed small, pendulous and albuminous.

Part used: Fruits

Procedure and time of collection:

The crop is harvested in the month of April and May, and the fruits are dried in shade. It is a slow and gradual process as all the umbels do not mature at one time

Preservation and storage:

The trimmed compound umbels are dried under shade at room temperature on a clean floor and lastly winnowed to remove stalk etc. in order to collect the clean fruits. The drug is further dried and packed in air tight bottles. Its medicinal efficacy lasts for one year only.

Chemical constituents:

Fruits contain 1% of an amorphous glucosidal principle; 0.45% tannin; 4.76% olioresinous products; 3.2% of acrid oily liquid; 12.94% fixed oil; 0.2% glucose;13.83% proteins and 22.43% cellulose.[5]

The plant has been worked out chemically resulting in the isolation of a variety of chemical constituents which include ammoidin, ammajin,coumarin, marmesin, bergapten, xanthoxin, imperatorin, xanthotoxin, coumarinic acid, majuri, ammin, ammirin. The fruit of the plant from Dehradudn have been found to contain about 0.4% xanthotoxin. Xanthotoxin isolated from plant in *in vitro* studies in concentrations of 250-2000 ppm showed antifungal activity against *Colletotrichum capsici* and *Phytophthora palmivora* [7,12,14]

Xanthotoxin is the chief active principle in the fruit .It is a drug commonly employed in the treatment of vitiligo (leucoderma) and also in the formulation of 'suntan lotion'. It is effective in the treatment of lecoderma when given orally in dose of 50 mg three times daily or applied externally as one percent liniment followed by exposure of affected areas to sunlight or ultraviolent light for 2-4 hours.[1].

An efficient, one-new coumarin was isolated from the aerial parts of the A. majus L. has showed antiviral and anti-inflammatory activity.[10]

Maximum xanthotoxin content (1%) is found in green fruits from Jammu. The 8-MOP, methoxypsoralen constituent of the weed is one of the first agents used along with UVA radiation to treat psoriasis. (*Natural Medicines Comprehensive Database,* 2007.)[8]

Taste: Slightly bitter, produces burning sensation on tongue[5]

Temperament: Hot 3^o Dry 3^o[5]

Actions:

It is Anti inflammatory , Diuretic, deobstruent, Blood purifier, Emmenogogue, Detergent.[2,6,9]

Uses

It is useful in Vitiligo(lecoderma), melasma, pityriasis alba, psoriasis.[2, 4,5,6,8,9]

In Vitiligo (Leucoderma) [6]

It is used both internally as well as locally. Its powder is mixed with honey and takes 9gm powder with Luke warm water in morning and evening.

Powder of Aatrilal is mixed with vinegar then apply on affected skin and expose the affected part to sunlight for 10-20 minutes.

Method of processing:

No processing is required as the drug is free from any toxic effect.

Substitute:[5, 6]

Babchi (Psoralea corylifolia Linn.), Nakchikni (Wattakaka volubilis Linn)

Dose [5,9]**:** 1-3 gram

Important Unani Formulations

Safoof-e-Bars, Majun Aatrilal.[5, 9]

Clinical Studies

Vitiligo

A number of clinical studies have been carried out with the plant in the treatment of vitiligo. The plant was used both internally as well as externally for different durations. Though complete cure rate was small, an improvement in over 66% of cases in contrast to other photosensitizing agents was seen. Isolated patches of short duration were claimed to be cured with external application only followed by solar radiation. The younger age group with patches of shorter duration gave better results.[7]

In a trial at A.K. Tibbiya college Hospital, Aligarh Muslim University, Aligarh, on 88 patients (38 males, 50 females) of vitiligo in the age group of 3-68 years, 2 tablets (0.75 g each) of powdered fruit were given thrice daily after meals, while a lotion of whole fruit powder in vinegar (1:2) was applied locally over the vitiliginous area twice daily. After 1.5 hour of the morning dose, the affected areas were exposed to sunlight for 15 minute. The response was good in 11 patients(12.5%), fair in 50 (56.8%) while 27 (30.7%) reported no change. The regimentation progressed centripetally in 21 (23.9%) cases while in 67 (76.1%) it was perifollicular, giving the appearance of islands of pigmentation with in the patches.[7]

In another study the effect of the plant on ESR, serum GOT, GPT, cholesterol, bilirubin, blood sugar was studied in 30 cases (20 males and 10 females) of vitiligo. Each patient was given tablets of 0.75g made from fine powder in the dosage of two tablets three times a day after meals. The duration of the trial being not less than 180 day. Hematological studies done before and after the drug administration at an interval of 7,15,30,60,120 and 180 days revealed that ESR level was significantly reduced after 30 days of drug administration. The levels of Serum GOT, GPT, cholesterol, bilirubin, blood sugar and blood urea were not significantly changed.[7]

Various clinical trials on Aatrilal have also been carried out in Central Research Institute of Unani Medicine, Hyderabad,. They have showed significant results in vitiligo.[11]

Adverse Effects

Injudicious use of the fruit of Ammi majus in combination with skin exposure to the sun can

cause severe phototoxic dermatitis, owing to the presence of psoralens. IgE-mediated rhinitis and contact urticaria were caused by exposure to bishop's weed in a 31-year-old atopic female florist. A skin prick test with bishop's weed flowers gave an 8 mm wheal, and the bishop's weed specific serum IgE concentration was 9.7 PRU/ml [11]

CONCLUSION

The scientific analysis of Aatrilal (Ammi majus) proves many of the activities mentioned in Unani literature. Further investigations are needed to find out the mechanism of action. The preliminary investigations show promising results against vitiligo. Today there is a need of large sample size randomized controlled trial and safety profile of this drug should also be investigated thoroughly. These trials should be done in Indian Council for Medical Research (ICMR), Council for Scientific and Industrial Research (CSIR). Central Council for Research in Unani Medicine (CCRUM) should collaborate ICMR, CSIR to carry out these trials so that it can be established a standard drug for vitiligo.

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