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## Babchi (*Psoralea corylifolia* Linn.) and its therapeutic uses in Unani system of medicine - A review

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### Abstract

The *Psoralea corylifolia* Linn. from family Fabaceae is commonly known as babchi or bakuchi, used in Unani and other traditional medicines such as Ayurveda and Siddha. Babchi seeds contain an essential oils (0.05%), a nonvolatile terpenoid oil, a dark brown resin (8.6%), a pigment (hydroxyflavone), a monoterpene phenol (bakuchiol), a brown fixed oil (10%), raffinose, coumarin compounds, albumin, sugar, ash 7.5 % and a trace of manganese. Psoralen and isopsoralen are therapeutically active constituents. They are mainly used for the treatment of Bars (Leucoderma), Daussadaf (Psoriasis), Juzam (Leprosy), Bahaq (Pityriasis), Tap-e-Balghamiya (Phlegmatic Fever) and Deedan-e-Am'aa (Intestinal worms). The aim of this paper is to report the pharmacological actions and therapeutic applications of the Babchi seeds as per descriptions in Unani literatures.

## 1. INTRODUCTION

Babchi (*Psoralea corylifolia* Linn) is a common herbaceous weed which grows throughout the whole length and breadth of the plains of India. It is a medicinally important plant indigenous to tropical and subtropical regions of the world<sup>1-3</sup>. Unani classical literatures have reported use of babchi seeds in the treatment of leucoderma, leprosy, psoriasis and inflammatory diseases of the skin<sup>2</sup>.

Since ancient times Babchi Seed has been prescribed by Ayurvedic Physicians (Vaidyas) for the cure of leucoderma and leprosy while Unani Physicians (Hakeems) have been used Atrilal (Ammi majus) for this skin disorders. Atrilal was found in Egypt only. In 18<sup>th</sup> century Unani Physicians include Babchi Seeds in their clinical practice as a place of Atrilal due to its unavailability in India. Hakeem Alvi Khan stated "Babchi Seed is an alternate of Atrilal<sup>2</sup>.

### 1.1 Synonyms

**Vernacular name**<sup>1,3-6</sup>:

**Persian:** Waghchi, Vabkuchi

**Urdu:** Bebechi

**Hindi:** Babachi, Bavanchi, Bhavanj, Bukchi

**English:** Babchi Seeds

**Marathi:** Babachi, Bavachya

**Panjabi:** Babchi

**Gujrati:** Babchi

**Bengali:** Bavachi

**Kannada:** Bavanchigida, Karbekhiga

**Malyalam:** Kapokkari, Kaurkoalari

**Oriya:** Bakuchi

**Tamil:** Karpokarishi

**Telgu:** Bavanchalu, Bhavanchi-vittulu, Bogi-vittulu, Karu-bogi

**Sanskrit:** Aindavi, Avalguja, Bakuchi, Chanderlekha, Chanderprabha, Kushthahantri, Sashilekha, Shulotkha, Sitavari, Soma, Vejani

**Nepalese:** Bakuchi

**German:** Bawchan

**Bangladesh:** Buckidana

**Arabic:** Loelab el abid, Mahalep

**Srilanka:** Ravoli

**Chinese:** Ku Tzu, Pu Ku Chih, Bu Ku Zhi, Cot Chu

## 1.2 Plant description

An erect annual, 30-180 cm. high; stem and branches grooved, studded with conspicuous glands. Leaves simple, 3.8-7.5 by 2.5-5 cm. broadly elliptic, inciso-dentat. Flowers close, in dense axillary, solitary, 10-30 flowered racemes; Corolla bluish purple, standard orbicular, 6 mm. long, clawed. Pods 5 mm long, ovoid-oblong, closely pitted, mucronate, black. Seeds one, smooth, adhering to the pericarp, brownish black in colour, about 2 mm long, oblong and flattened, odourless but on chewing emit a purgent odour, bitter, unpleasant and acrid taste<sup>1,3,5</sup>. The plant flowers during rains and seeds mature in November. Under proper care, the plants may continue to grow for 5-7 years<sup>3</sup>.

## 1.3 Chemical constituents

Babchi seeds contain an essential oils (0.05%), a nonvolatile trepenoid oil, a dark brown resin (8.6%), a pigment (hydroxyflavone), a monotrepnoid phenol named bakuchiol, a brown fixed oil (10%), raffinose and coumarin compounds ( psoralen, isopsoralen, psoralidin, isopsoralidin and corylifolin), albumin, sugar, ash 7.5% and a trace of manganese<sup>1,3,6,7</sup>. Psoralen and isopsoralen are considered the therapeutically active constituent of the seeds<sup>3</sup>.

Fixed oil is on keeping deposits psoralen. It contains resin acid (21.5%); stigmasterol is present in the unsaponifiable matter. Essential oil and unsaponified oil are pharmacologically active. They used in case of leucoderma and psoriasis<sup>1,6</sup>.

## 1.4 Temperament (*Mizaj*)

Hot 2<sup>0</sup> and Dry 2<sup>0, 1, 2, 6-9</sup>

Hot and Dry 2<sup>0</sup> - 3<sup>0</sup> 11-12

## 1.5 Therapeutic Dosage (*Miqdar-e-Khurak*)

Seeds powder (Safoof): 4-6 gm<sup>2-7</sup>, 3.5-7.5 masha<sup>11, 12</sup>.

Seeds infusion (Zulal): 1.25 Tola<sup>10, 12</sup>

## 1.6 Method of Uses (*Tarkeeb-e-Istemat*)

Babchi seeds are prescribed both for oral administration (Brah-e-Dahn) and for external topical application in the form of a paste (Zamad) and ointment (Marham)<sup>2,3</sup>.

## 2. PHARMACOLOGICAL ACTIONS (*AF'AAL*)

Musaffi-e-Khoon (Blood Purifier)<sup>2,5,6-9,11</sup>,

Dafe-e-Bars (Anti-leucodermic)<sup>2,5,6-13</sup>,

Dafe-e-Jozam (Anti-leprosy)<sup>1-3,5,7,10,13,14</sup>,

Dafe-e-Daussadaf (Anti-psoriatic)<sup>1,3,7,13</sup>,

Dafe-e-Kharish (Anti-pruritic)<sup>5,8,10,12,14</sup>,

Maney-e-Sauda (Anti-souda)<sup>7</sup>,

Jali (Detergent), [2,6,8, 10,11]

Mulayyen-e-Am'aa (Laxative)<sup>1,3,5,6,7,10,11,12</sup>,

Kasir-e-Riyah (Carminative)<sup>6,8,9,11,12</sup>,  
 Mushtahi (Appetizer)<sup>5,10,12</sup>,  
 Muqavvi-e-Medah (Gastro tonic)<sup>6,9-12</sup>,  
 Dafe-e-Waj-u-Meda (Anti-stomacache)<sup>5,14</sup>,  
 Qatil-e-Deedan-e-Amaa (Anthelmintic)<sup>1,3,5-11,14</sup>,  
 Dafe-e-Tap-e-Balghamiya (Anti-phlegmatic Fever)<sup>3,5,7,8,10,11,12,14</sup>,  
 Mu'arriq wa Mudirr-e-Baul (Diaphoretic and Diuretic)<sup>1,3,7</sup>,  
 Muhallil-e-Waram (Anti-inflammatory), [10,12,14]  
 Muharrik wa Muqavvi-e-Bah (Stimulant and Aphrodisiac)<sup>1,3,5,7,11,13,14</sup>,  
 Muqavvi-e-Qalb (Cardiac Tonic)<sup>5,10,12</sup>,  
 Mus'hil (Purgative)<sup>2,5,14</sup>,  
 Dafe-e-Damah (Anti-asthmatic)<sup>5,10-12</sup>,  
 Musakkin (Sedative)<sup>7,14</sup>,  
 Maney-e-Jarasim (Antibacterial)<sup>1,3,14</sup>,  
 Mukharrish (Irritant)<sup>2</sup>,

### 3. THERAPEUTIC USES (MAHALL-E-ISTEMALAT)

Babchi seeds are specially suggested in the treatment of Bars (Leucoderma), Daussadaf (Psoriasis), Juzam (Leprosy), Bahaq (Pityriasis), Jarab (Scabies), Hekah (Pruritis), Quba (Ring worm) and Fasad-e-Khoon (Impurities of Blood)<sup>1-14</sup>. They are also used in Amraz-e-Dam (Blood Diseases), Amraz-e-Safra (Bilious Diseases) Tap-e-Balghamiya (Phlegmatic Fever), Deedan-e-Am'aa (Intestinal worms), Qarha-e-Atshak (Syphilitic Ulcer), and Surat-e-Inzal (Premature Ejaculation)<sup>5,7,8,12</sup>.

### 4. SCIENTIFIC STUDIES REPORTED IN LITERATURE

Few scientific studies are illustrated below regarding Babchi (*Psoralea corylifolia* Linn) seeds.

#### 4.1 Anti-psoriatic activity

It is reported that Babchi seeds powder (Safoof) were found effective in the treatment of Da-al-sadaf (psoriasis) at the dose of 6 gm in the form of Zulal (infusion) twice a day on empty stomach for 45 days in 40 patients<sup>15</sup>. Another study showed that *Psoralea corylifolia* seed extract had potential antipsoriatic activity<sup>16</sup>. Another trial showed that the use of psoralen along with its chemical derivatives, namely, trioxalen, supplemented with exposure to sunlight is a more effective treatment for psoriasis<sup>17</sup>.

#### 4.2 Anti-Leucodermic Activity

A clinical trial was carried out on 30 patients having vitiligo by the local application of an Ayurvedic preparation containing *P. corylifolia* as the main ingredient, along with oral administration of Gandhaka rasayana. Early cases of vitiligo showed maximum improvement within 1–10 months, whereas chronic cases having vitiligo of lip showed a poor response. Oral administration of 8-methoxypsoralen along with exposure of the patient to sunlight for 5–30 min daily for 1–7 weeks gave very encouraging results. In one study, 49 patients underwent 6 months of *Psoralea corylifolia* treatment. Of these patients, 14% were cured and another 19% regained pigmentation on at least two-thirds of the affected skin<sup>17</sup>.

#### 4.3 Anti-inflammatory

The chloroform extract of seed at a dose of 400 mg/kg is effective against carageenin induced paw oedema in rat and mouse ear inflammation<sup>18</sup>.

#### 4.4 Hepatoprotective

The aqueous extract of seed furnished one hepatoprotective compound, bakuchiol, together with two moderately active compounds, bakuchicin and psoralen, on tacrine-induced cytotoxicity in human liver- derived Hep G-2 cells<sup>19</sup>.

#### 4.5 Anti -helminthic Effect

The alcoholic extracts of seeds of evaluated for anthelmintic activity using two-enzyme system taking rat brain as a model for *Ascaridia galli*<sup>20</sup>.

#### 4.6 Neuroprotective Activity

It is demonstrated that *P. corylifolia* Linn seed extracts have a significant protective effect

against 3-nitropropionic acid induced cytotoxicity. Thus, *P. corylifolia* Linn seed extracts may have potential applications as therapeutic agents for treating neurodegenerative disease<sup>21</sup>.

#### 4.7 Antibacterial Activity

It is reported that three new prenylflavonoids, namely corylifols A-C (1-3), were isolated from the seed of *P.corylifolia* showed antibacterial activity against *Staphylococcus aureus* and *S.epidermidis*<sup>22</sup>.

Another study revealed that extract of *Psoralea corylifolia* seeds were active against both Gram +ve bacteria and Gram -ve bacteria. Moreover, the present work clearly demonstrates that the presence bakuchiol has a key role for antimicrobial activity of *Psoralea corylifolia*<sup>23</sup>.

#### 4.8 Anti-fungal Activity

It is demonstrated that the methanol seed extract of *P. Corylifolia* comprise of a promising antifungal activity against *M. furfur*, *C. albicans*, and *A. niger* as compare to seed oil<sup>24</sup>.

#### 4.9 Adverse Effects (*Muzir Asraat*)

Nafakh (Flatulence)<sup>6</sup>.

#### 4.10 Corrective (*Musleh*)

Saunf, Roghan and Dahi<sup>6,8</sup>

#### 4.11 Substitute (*Badal*)

Tukhm-e-Panwad [6]

#### 4.12 Formulations (*Murakkabat*)

Safoof-e-Bars, Zamad-e-Bars, Roghan-e-Babchi, Safi, No Bars Tablet and Ointment<sup>2,25-27</sup>.

### 5. CONCLUSION

Babchi is a very important medicinal plant for skin diseases and other ailments of stomach, intestines, nerves due to its pharmacological actions and phytochemical compound of the seeds. The scientific studies have undertaken in this regard amply testifies and validates the claims of Unani physicians. Extensive research should be carried out on it for their better economic and therapeutic utilization.

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