

## Ethnobotany and pharmacognosy of Darunaj aqrabi (*Doronicum Hookeri* Hook. F.) with special reference of Unani medicine

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### Abstract

*Doronicum hookeri* Hook.f. Commonly known as Leopard's bane is the root of a perennial herb mostly distributed in Sikkim Himalayas between 12000- 14000 ft, Syria, Africa, Iran, Europe and Spain. It is also known by various other names like Darunah, Darunak, Aqeer, Tus, Tarang, Qarufas, Qarunas etc around the globe. It belongs to the family Asteraceae and has been used in the treatment of various ailments and conditions like palpitation, scorpion bite, plague, nightmare, indigestion, pain abdomen, chest pain, headache, flatulence, cough, fatigue, paralysis, palsy, inflammation, labour pain, renal and bladder stone. Beside these, it has other pharmacological activities like neuro, liver and spleen tonic, stomachic, exhilarant, foeto-protective, aromatic and alexiteric. It contains alkaloids, flavonoids, triterpenes, saponins, coumarins, essential oils and cardiac glycosides. This review paper exclusively presents the morphological and microscopic structure, temperament, chemical constituents, pharmacological actions, uses in diseases, dose, important formulations and adverse effects of *Doronicum hookeri* with the reference of not only ethnobotanical data and pharmacological studies but also with the reference of Unani literature in detail and gives a new impetus to utilize this drug in various disorders. Number of *in vivo* and *in vitro* studies have also reported its antibacterial, antifungal, antioxidant and hepatoprotective activities.

**Keywords:** Darunaj aqrabi, *Doronicum hookeri*, Unani medicine

### Introduction

*Doronicum hookeri* Hook. f. Belongs to family Asteraceae. <sup>[1, 2]</sup> Its Unani name Darunaj aqrabi is derived from two words, Darunaj which means nodular and aqrabi which means scorpion like. So due to the nodular structure of roots and its resemblance with the tail of scorpion, it is named as Darunaj aqrabi. <sup>[3, 4]</sup> mostly distributed in Sikkim Himalayas at 12000-14000 ft, Syria, Africa and Iran. <sup>[5, 6, 7]</sup> Its leaves are narrowed into short, ½- amplexicaul petioles, oblong or elliptic lanceolate, obtuse or acute, entire or irregularly toothed. <sup>[6]</sup> Alkaloids, flavonoids, triterpenes, saponins, coumarins, essential oils and cardiac glycosides are its essential constituents. <sup>[8, 9]</sup> Root is aromatic and used as an ingredient in cardiac and nervine tonic. <sup>[1, 10]</sup> It is used as an exhilarant, stomachic, antifatulence, Antidote and also used in malenchoia, paralysis, chest and womb pain. <sup>[11]</sup> Beside this, it is also hung up in houses to keep away the plague. Pregnant women wear it round the waist to protect foetus and procuring painless delivery. Hung up over the bed to prevent night terrors and endures pleasant dreams. <sup>[3]</sup> Antibacterial, antifungal, antioxidant and hepatoprotective activities of *Doronicum hookeri* root have been reported <sup>[8, 12, 13]</sup>.

### Taxonomical Classification

Kingdom: Plantae  
Division: Magnoliophyta  
Class: Magnoliopsida  
Subclass: Asteridae  
Order: Asterales  
Family: Asteraceae  
Genus: *Doronicum*  
Species: *hookeri*  
Botanical name: *Doronicum hookeri*

### Vernacular Names <sup>[7, 14]</sup>

Arabic: Aqeer  
Urdu: Darunaj aqrabi  
English: Leopard Bane  
Hindi: Tus, Tarang  
Persian: Darunak, Darunah  
Siryani: Qarufas  
Hebrew: Qarunas

**Habitat**

It is distributed in Sikkim Himalayas between 12,000-14,000 ft. Also found in Syria, Africa, Iran, Europe and Spain. [15, 6, 7]

**Morphology**

A robust herb, 0.3-0.6 m. high. Radical leaves 0, or soon withering; cauline 10-15 by 2.5-5 Cm, often unequal-sided. Leaves all narrowed into short, ½- amplexicaul petioles, oblong or elliptic lanceolate, obtuse or acute, entire or irregularly toothed. Heads 1-2, 6.3 cm. glandular-pubescent. Involucral bracts ovate-lanceolate, acuminate. Achenes all pappose. Pappus short, reddish [6].

**Microscopic Structure**

Sections show that the bulk of the rhizome consists of a parenchyma, each cell of which is occupied by a mass having a granular appearance inactive in polarized light; towards the circumference, the cells become gradually smaller, and upon the surface become scaly, forming a greyish epidermis. The cells are coloured black with iodine with purplish centres, such as starch and dextrin would exhibit. After immersion in glycerine and alcohol, the section showed no spheroidal crystals of inulin, but ceased to give the purplish-black colour. The vascular bundles are of a bright yellow colour, and consist of spiral vessels; they

form one irregular ring round the rhizome about midway between the circumference and centre. [3]

**Temperament (Mizaj)**

Hot and dry in 3<sup>rd</sup> degree. [15, 7, 16, 11, 4, 14]

**Part Used (Ajzaye mustamela)**

Root [9, 15]



**Fig 1:** *Doronicum hookeri* (Darunaj aqrabi)

**Constituents**

Alkaloids, flavonoids, triterpenes saponins, coumarins and essential oils [9] Cardiac glycosides [8]

**Table 1: Pharmacological Actions (Afaal):**

Action of drug	Unani references	Ethno-botanical references
<i>Muqawwi Qalb</i> (Cardio tonic)	[11, 7, 4, 17, 15, 18]	[2, 3, 6, 19]
<i>Muqawwi Hawas</i> (Neuro tonic)	[11, 7, 17, 15]	[10, 3]
<i>Muqawwi Meda</i> (Stomachic)	[11, 7, 4, 17, 15]	[3, 6]
<i>Muqawwi Jigar</i> (Liver tonic)	[11, 7, 4, 17, 15]	
<i>Muqawwi Tehal</i> (Spleen tonic)	[17]	
<i>Kasir-e-Riyah</i> (antiflatulence/Carminative)	[11, 7, 4, 15]	[2, 3, 6]
<i>Mufarrah</i> (Exhilarant)	[11, 7, 15, 18]	[2]
<i>Muhallil-e-Balgham wa Sauda</i> (Phlegm and black bile resolvent)	[11, 7, 4, 15]	[3]
<i>Muhafiz-e-Janeen</i> (Foeto-protective)	[15, 4, 14, 7, 17]	[3]
<i>Daf-e-Suddah</i> (Deobstruent)	[7, 17]	
<i>Tiryaaq</i> (Antidote)	[7, 4, 17, 15, 11]	[3]
<i>Musakkhin</i> (Calorific)	[4, 15]	
Antioxidant		[20, 8, 21]
<i>Muhafiz-e-jigar</i> (Hepatoprotective)		[8]
Antibacterial		[12]
antifungal		[12, 13]
Aromatic		[1, 10, 12]
<i>Muqawwi</i> (Tonic)		[1, 10, 12]
<i>Daf-e-taffun</i> (Alexiteric)		[6]
<i>Daf-e-suaal</i> (Antitussive)		[6]
<i>Muhallil-e-auram</i> (Antiinflammatory)	[17]	[6]
<i>Mufattit-e-hisar</i> (Lithotriptic)	[15, 7]	

**Table 2: Therapeutic Uses (Mawaqe istemal)**

Uses	Unani references	Ethno-botanical references
<i>Khafqan</i> (Palpitation)	[11, 7, 16, 4, 15]	
<i>Amraz-e-Balghami wa Saudawi</i> (Diseases of phlegm and black bile)	[15]	[3]
<i>Bichchu ka katna</i> (Scorpion bite)	[16, 11, 7, 4]	[3]
<i>Taaun</i> (Plague)	[11, 7, 4, 15]	[3]
<i>Badkhwabi</i> (Night mare)	[15, 11, 7]	[3]
<i>Malekhulia</i> (Malenchoia)	[14, 11, 7, 4, 15]	[3]
<i>Dard-e-raham</i> (Womb pain)	[14, 11, 7]	[3]
<i>Reyah-e-raham</i> (Trapped gases of uterus)	[16, 4, 15]	
<i>Sue hazm</i> (Indigestion)	[11, 17, 15]	[3]
<i>Dard-e-shikam</i> (Pain abdomen)	[4]	

<i>Dard-e-seena</i> (Chest pain)	[11, 7, 17, 15]	[6]
<i>Dard-e-sar</i> (Headache)	[7, 17]	[6]
<i>Nafakh</i> (Flatulence)	[7, 4, 17, 15]	[3]
<i>Khansi</i> (Cough)		[6]
<i>Suddah</i> (Obstruction)	[17]	
<i>Kasal wa thakawat</i> (Fatigue)	[7, 15]	
<i>Falij</i> (Paralysis)	[4, 15]	
<i>Laqwah</i> (Palsy)	[4, 15]	
Buboes		[6]
<i>Waram</i> (Inflammation)	[17]	[6]
<i>Chakkar</i> (Giddiness)		[6, 10]
<i>Weladat ka dard</i> (Labour pain)	[15]	[3]
<i>Gurde aur masane ki pathri</i> (Renal and bladder stone)	[7][15]	

Table 3: Pharmacological Studies

Action	Form	Model Used	After Treatment	References
Antioxidant	Extract	<i>in vitro</i>	Scavenge free radicle	[20, 8, 21]
Hepatoprotective	Extract	Rats	Significantly restricted the increase in liver enzymes	[8]
Antimicrobial	Extract	<i>in vitro</i>	Inhibit the growth of microorganism	[12]
Antifungal	Extract	<i>in vitro</i>	Inhibit growth of fungus	[13]

**Daily Dosage (Miqdare khurak)**

4-7 gm. [11]

3.5-7 gm. [15]

3-7 gm. [7]

**Adverse Effects (Muzirrat)**

It produces headache. [15, 7]

**Corrective (Muslehat)**

Fennel (Badyan) [15, 4]

(Faneez), (Nishasta) [15]

**Substitute (Badal)**

Zedoary (Zarnebad) [15, 4]

Pyrethrum (Qaranfal), Clove (Aqir qarha) [11]

Costus (Qust), Colchicum (Suranjan) [15]

**Important Formulations (Murakkabat)**

Dawaulmisk [4, 22, 23],

Mufarreh Yaqooti, Majoon Hamal Ambari, Laboobe Kabir [23, 4],

Mufarraah Azam, Mufarraah Khas. [24]

**Conclusion**

From the above review it can be concluded that Darunaj aqrabi (*Doronicum hookeri* Hook.f) is one of the roots to be used as medicinal importance in Unani medicine. Many medicinal active compounds have been isolated from Darunaj aqrabi.

It has been used successfully by Unani physicians in the treatment of palpitation, scorpion bite, plague, nightmare, malenchoia, womb pain, flatulence, indigestion, pain abdomen, chest pain, headache, cough, fatigue, paralysis, palsy, inflammation and giddiness. Darunaj aqrabi and its active compounds have substantiated their potential antioxidant, hepatoprotective, antibacterial and antifungal activities in various *in vitro* and *in vivo* studies. The adverse effect is headache.

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