

REVIEW

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Colchicum luteum Baker (*Suranjan Talkh*): Current Perspective on Therapeutic Properties

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ABSTRACT

Suranjan (Colchicum luteum baker) is one of the oldest drugs known to mankind. *Suranjan Talkh* is considered as the first line drug in the management of arthritis (*Waja 'ulMafasil*). *Colchicum luteum* is one of the rarest and hence most expensive medicinal plants. This drug has a momentous position in the Unani system of medicine and text. It is an active part of many Unani formulations due to the presence of the alkaloid colchicine, which is claimed to be effective in arthritis, gout, rheumatism, and used as a carminative, laxative, and aphrodisiac. It is also applied externally to relieve inflammation and pain. The main objective of this review paper is to elucidate the taxonomic, pharmacognostic, and physicochemical behaviour of *Colchicum luteum*. The present paper is also an attempt to bring this effective drug to limelight by describing its palliative, therapeutic and other uses.

Keywords: *Suranjan Talkh*; *Colchicum luteum*; Colchicine; *Waja 'ulMafasil*

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Introduction

Colchicum luteum is an annual herb, which belongs to the Colchicaceae family (previously Liliaceae). It is commonly known as Suranjan Talkh. It is an annual herb with bitter taste¹. Colchicum luteum is a good substitute for Colchicum autumnale L., a species not available in India, which is an official herb in the British Pharmacopoeia². The Hermodactyl or “Finger of Hermes” was unknown to the early Greeks. It appears to have been first used medicinally by the Arabs or later Greeks and was first mentioned by Alexander of Tralles in 560 A.D.^{2,3}. It was known from the time of Dioscorides, although not much used, owing to its toxic nature². The name “Colchicum” was given to this medicinal plant by a Unani physician, Dioscorides⁴. Colchicum corms were used by the Persian Physician Avicenna, were recommended by Ambroise Pare in the 16th century, and appeared in the London Pharmacopoeia of 1618. Colchicine alkaloid was first isolated in 1820 by two French chemists P.S. Pelletier and J. Caventou^{2,5,6}. Colchicine is one of the seven Upnishads in the Indian medicines, which cure many ailments like gout and Familial Mediterranean Fever⁵. Najmul Ghani, Ibn Sina, and Kabiruddin described Suranjan Talkh as an antidote for joints (Mafasil)⁴. Its references in Ayurvedic literature are not found in abundance, as it was added to Ayurvedic literature in 1935 A.D. by Acharya Shankar Dutt Gond⁷.

Vernaculars Name^{4,8,9,10}

Latin Name: Colchicum luteum Baker

Arabic: Qalb-ul-Ard, Sooranjan, Haafiral-muhr, Assabi

Persian: Suranjan-i-Talkh

Nepali: Nilotutho

English: Golden collyrium, Kashmir

Harmadactyls, Meadow Saffron

Kannada: Kaadigegida, Virkum

Hindi: Hirantutiya, Surinjin, Barbari

Sanskrit: Hiranyatutha, Tuthanjana

Tamil: Curincan

Unani: Suranjan Talkh, Harmodactyl (Hirmis' finger)

Urdu: Suranjan Talkh

Description

a. Macroscopic: Suranjan Talkh is a small perennial herb attaining a height of 2-10 inches¹¹. The leaves are alternate or less often opposite or whorled, broad linear shape with a dimension of 12-18cm x 0.8-2cm. The flowers are nearly always bisexual and actinomorphic¹². Corms are light brown in color and opaque with a bitter taste⁶.

b. Microscopic: In the transverse section, it appears reniform (kidney shaped) being depressed in the region of the groove. The epidermis consists of rectangular cells, some of which contain a few starch grains¹³. Below the epidermal layer is a thin-walled hypoderm composed of similar cells but devoid of contents. The ground tissue is composed of thin-walled parenchyma densely loaded with starch. Some of the cells near the periphery on the grooved side are more or less crushed laterally forming 2-4 fine streaks. There are numerous scattered vascular bundles mostly located in the central region of the corm near the basal bud. The bundles near the periphery are poorly developed and more scattered. The vascular bundles are collateral with occasional bicollateral bundles. The xylem consists of annular or spiral elements. The starch grains in the parenchymatous ground tissue are simple, ovoid, spherical or polyhedral. They vary in size from 2 – 21 microns and possess a 2 – 6 angled stellate hilum¹⁴.

Geographical Distribution

Suranjan Talkh is widely distributed in the Western Himalayas (China, India, Pakistan, and Afghanistan) at an altitude of 600-700 m⁶. *Colchicum luteum* grows in India from Kashmir to Chamba. It is generally found in areas of the Himalayan region extending up to the Hind-Kush Mountains¹⁰. The major supplies of the drug are received from Kashmir¹⁴. The plant usually exists in climatic conditions of a low temperature below 15 °C⁷. The corms yield Colchicine, which is an official medicinal herb in the Indian Pharmacopoeia, United States Pharmacopoeia, British Pharmacopoeia and Japanese Pharmacopoeia¹⁴.

Chemical Constituents

Chemical analysis reveals the presence of the following alkaloids in different parts of *colchicum luteum* (Table 1-3)^{5,6,15}

Scientific Reports/ Pharmacological Studies

a. **Antioxidant activity:** The Ethanolic extract from corms of *Colchicum luteum* was investigated phyto-chemically and found to have promising anti-oxidant activity¹⁰.

b. **Anti-inflammatory and analgesic activity:** Javed *et al.* clinically studied the effect of *Colchicum luteum* in the management of Rheumatoid arthritis (RA) and demonstrated a beneficial effect. The drug seems to have anti-inflammatory and analgesic effects in RA, as it reduces or minimizes the symptoms/signs of RA²⁰.

c. **Anti-granuloma activity:** Vinod Nair *et al.* researched on the anti-granuloma activity of *Colchicum luteum*. Their study demonstrated an anti-inflammatory and anti-granulomatous activity of CLHE (*Colchicum luteum* hydroalcoholic extract), as it decreased both granuloma formation and expression of proinflammatory cytokines/cytokine receptor.

Table1: Isolated alkaloids from different parts of *colchicum luteum*

S. No	Isolated alkaloids from different parts of <i>colchicum luteum</i>
1.	Colchamine
2.	3-desmethylamine
3.	3-dimethyl-β-lunicolchamine
4.	3-desmethylcolchamine
5.	β-lunicolchicine
6.	N-desacetyl-N-formylolchicine
7.	Luteidine
8.	New alkaloid L-5 and L6
9.	Lutiene
10.	Collutine N-oxide

Table 2: Derivatives of Colchicine ⁵	
Derivatives	Action
1. 3-dimethylcolchicine	Improves therapeutic properties of anti-inflammatory and anti-tumor drugs
2. Colchicoside	
3. Thiocolchicoside	

Table 3: Percentage of Colchicine in different parts of Colchicum luteum ¹⁰	
Parts	Percentage of Colchicine
Seed	0.41-0.43 %
Corns	0.21-0.25 %
Flower	0.1-0.8%

1.5. Table 4: Therapeutic Actions and Uses ^{4,5,6,8,9,11,15,16}	
Actions	Uses
<i>Mujaffif</i> & <i>Qabiz</i> (Astringent)	The dried powdered of corns is very effective in healing the wounds. It should be sprinkled on the affected parts to promote cicatrization. The drug is widely used for internal hemorrhoids. For this purpose, a cloth soaked with cow/goat milk and <i>Suranjan</i> paste (1 gm) is applied on piles mass, it necroses and falls down in due time.
<i>Tiryayq</i> (Antidote for arthritis) & <i>Musakkin-e-alam</i>	Combined with saffron and eggs, a paste is made and applied on rheumatic and other swellings. It reduces swelling, inflammation and pain and hence used in treatment of gout (combined with aloe), rheumatism and similar joint conditions.
<i>Mulaftif</i> (Demulcent) & <i>Muhallil</i> (Resolvent)	It is also used in liver and spleen diseases.
<i>Kasir-e-riyah</i> (Carminative), <i>Mushil</i> (Purgative), <i>Muqawwi bah</i> (Aphrodisiac), & <i>Musaffi dam</i> (Blood purifier)	It is used as a carminative, purgative, aphrodisiac & blood purifier.
<i>Muhallil-e-awram</i> (Anti-inflammatory)	Colchicine is utilized to treat internal injuries.
<i>Musakkin-e-alam</i> (Analgesic)	It is applied as <i>Humul</i> with <i>Ghee</i> (goat, cow) in piles to reduce pain and to eliminate the mass.
<i>Mudir</i> (Diuretic)	Due to having <i>Mudir</i> property, can sometimes be used in <i>Dropsy</i> .

1.6. Table: 5. Further Characteristics of <i>Colchicum luteum</i>	
Dosage	1-3 <i>Ratti</i> (0.1215gm-0.3645gm) [1].500-650 µg, 1-3 times a day-Orally ² Avoid oral use due to high toxicity,. Only external application is recommended ¹⁹
Temperament	<i>Har 3⁰</i> (Hot) and <i>Yabis 3⁰</i> (Dry) ^{18, 19} <i>Har 2⁰</i> and <i>Yabis 2⁰⁴</i> <i>Har 3⁰</i> and <i>Yabis 2⁰⁴</i>
Side Effects	Gastrointestinal irritation with nausea, vomiting and diarrhea, nervous system depressant ,harmful (<i>Muzir</i>) for stomach and liver, death in case of high dosage ^{1, 5, 16, 20}
Corrigents	<i>Sonth-</i> (<i>Zingiberofficinale</i>) and <i>Filfilsiyah</i> (<i>Piper nigrum</i>) <i>Zeera</i> (<i>Cuminumcuminum</i>) ^{1, 19}
Substitutes	<i>Asgandh</i> & <i>Suranjanzard</i> ¹
Compound Formulations	<i>Habb-e-Mafasil</i> , <i>Majoon-e-Niqras</i> ²¹

They believed that their findings validate the clinical application of CLHE in the management of granulomatous disorders by practitioners of complementary and alternative medicine ⁶.

d. **Anti-fungal activity:** Excellent anti-fungal activity of *Colchicum luteum* has been shown up to 75 %against *trichophytonlongifusus*, and up to 85% against *microsporumcanis* ¹⁰.

Conclusion

Traditional medicines such as *Tibb-i-Unani* are being explored for effective and safe anti-arthritis drugs. It was concluded from literature survey that *Suranjan Talkh* (*Colchicum luteum* Baker) is mentioned in Unani classical literature for its various activities but especially for arthritis. Several preliminary studies also reported its effectiveness in arthritis. Therefore, *Colchicum luteum* must be explored for high through-out screening and scientific validation for its efficacy in arthritis as well as in other types of joint disease including osteoarthritis, RA, gout etc.

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None

Conflict of Interest

All the authors declare no conflict of interest.

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