Ansari et al. Asian J Trad Com Alt Med. 3(1-2), Summer 2020: 23-28
DOI: 10.22040/ATCAM.2019.108140

Asian Journal of Traditional, Complementary and Alternative Medicines

REVIEW

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

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Received: 2020-02-13 *Accepted: 2020-05-18*

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'ulMafaṣil*). *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'ulMafaṣil*

Citation: Aysha Ansari, Mohd Nayab, Saima Saleem, Mearaj ul islam. Colchicum luteum Baker (Suranjan Talkh): Current Perspective on Therapeutic Properties. Asian J Trad Com Alt Med, 3(1-2), Summer 2020:23-28.

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Introduction

Colchicum luteum is an annual herb, which belongs to the Colchicaceaefamily (previously *Liliaceae*). It is commonly known as *SuranjanTalkh.*It is an annual herb with bitter taste [1]. *Colchicum luteum* is a good substitute for *Colchicum autumnale L.*, a species not available in India, which is an official herb in the British Pharmacopoeia [2]. TheHermodactyl 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 nature [2]. The name "Colchicum" was given to this medicinal plant by a*Unani* physician,*Dioscorides* [4]. Colchicum corms were used by the Persian Physician Avicenna, were recommended by Ambroise Pare in the 16thcentury, and appeared in the London Pharmacopeia 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 MediterraneanFever [5]. *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 Gond [7].

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, MeadowSaffron
Kannada: Kaadigegida, Virkum
Hindi: Hirantutiya, Surinjin, Barbari
Sanskrit: Hiranyatutha, Tuthanjana
Tamil: Curincan
Unani: SuranjanTalkh, Harmodactyl (Hirmis' finger)
Urdu: SuranjanTalkh

Description

a. Macroscopic: *Suranjan Talkh*is a small perennial herb attaining a height of 2-10 inches [11]. 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 actinomorphic [12].Corms are light brown in color and opaque with a bitter taste [6].

b. Microscopic: In the transverse section, it appears reniform (kidney shapped) being depressed in the region of the groove. The epidermis consists of rectangular cells, some of which contain a few starch grains [13]. 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 hilum [14].

Geographical Distribution

Suranjan Talkh is widely distributed in the Western Himalayas (China, India, Pakistan, and Afghanistan) at an altitude of 600-700 m [6]. *Colchicum luteum*growsin India from Kashmir to Chamba. It is generally found in areas of the Himalayan region extending up to the Hind-Kush Mountains [10]. The major supplies of the drug are received from Kashmir [14]. The plant usually exists in climatic conditions of a low temperature below 15 ºC [7]. The corms yield Colchicine, which is an official medicinal herb in the Indian Pharmacopoeia, United States Pharmacopoeia, British Pharmacopoeia and Japanese Pharmacopoeia [14].

Chemical Constituents

Chemical analysis reveals the presence of the following alkaloids indifferent 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 activity [10].

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 RA [20].

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*hy droalcoholic 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 colchicum luteum
1.	Colchamine
2.	3-desmethylamine
3.	3-dismethyl-β-lunicolchamine
4.	3-desmethylcolchamine
5.	β-lumicolchicine
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 ofanti-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 %**
Corms	**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**
Mujaffif,&Qabiz(Astringent)	The dried powdered of corms 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 *Suranjan*paste (1 gm) is applied on piles mass, it necroses andfalls down in due time.
Tiryaq (Antidote for arthritis)&*Musakkin-e-alam*	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 aloes), rheumatism and similar joint conditions.
Mulaṭṭif (Demulcent)&*Muhallil* (Resolvent)	It is also used in liver and spleen diseases.
Kasir-e-riyah (Carminative), *Mushil* (Purgative), *Muqawwi bah* (Aphrodisiac), &*Musaffi dam* (Blood purifier)	It is used as a carminative, purgative, aphrodisiac & blood purifier.
Muhallil-e-awram(Anti-inflammatory)	Colchicine is utilized to treat internal injuries.
Musakkin-e-alam(Analgesic)	It is applied as *Humul* with *Ghee* (goat, cow) in piles to reduce pain and to eliminatethe mass.
Mudir(Diuretic)	Due to having *Mudir* property, can sometimes be used in *Dropsy*.

1.6. Table: 5. Further Characteristics of Colchicum luteum	
Dosage	1-3 *Ratti* (0.1215gm-0.3645gm) [1].500-650 µg, 1-3 times a day-Orally [2] Avoid oral usedue to high toxicity,. Only external application is recommended [19]
Temperament	*Har* 3^0 (Hot) and *Yabis* 3^0 (Dry) [18, 19] *Har* 2^0 and *Yabis* 2^0 [4] *Har* 3^0 and *Yabis* 2^0 [4]
Side Effects	Gastrointestinal irritation with nausea, vomiting and diarrhea, nervous system depressant ,harmful (*Muzir)* for stomach and liver, death in case of high dosage [1, 5, 16, 20]
Corrigents	*Sonth-* (*Zingiberofficinale*) and *Filfilsiyah* (*Piper nigram*) *Zeera* (*Cuminumcyminum)*[1, 19]
Substitutes	*Asgandh&Suranjanzard* [1]
Compound Formulations	*Habb-e-Mafasil*, *Majoon-e-Niqras* [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-arthritic 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.

Source of Funding

None

Conflict of Interest

All the authors declare no conflict of interest.

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