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Review Article

# Suranjan Shirin (*Colchicum*) - A Potent Uricosuric Unani Drug?

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## Abstract

Suranjan is a rhizomatic herb, also known as the Indian *Colchicum* (*Colchicum autumnale Linn*), that has been used for Centuries in Ayurvedic and Unani system of medicine, primarily to manage various inflammatory joint conditions like gout, osteoarthritis, sciatica and rheumatic arthritis. It is a proven analgesic and potent uricosuric agent. Its chief active principle colchicine is a well known potent drug to expel uric acid deposits from blood and joints in gouty arthritis (Niqras). Therefore this drug has a important status in Unani system of medicine and literature. Its other uses include relief from gas, removes constipation, treating dermatological disorders; maintain regular bowel movement, useful in purifying blood and reducing muscle spasms.

Recent studies on colchicines prove it as an antioxidant, anti-inflammatory, antibacterial and antifungal drug. Some study also projects its anti cancer activities. This review paper is an attempt to bring this effective drug to lime light by describing palliative, therapeutic and other properties of Suranjan.

***Keywords:*** *Anti-inflammatory; Analgesic; Colchicum; Gout; Niqras; Suranjan; Unani*

## Introduction

Unani medicine is the oldest form of medicine known to mankind. In the beginning it was the core of treatment in many civilizations and still the most broadly practiced form of medicine in the world today. It is commonly cultivated in India, Afghanistan, Pakistan, and Nepal. Plant showed wide range of pharmacological activities including anti-inflammatory, analgesic, antibacterial, antioxidant, anticancer, and many other pharmacological effects.

The word 'Suranjan' possibly came from Unani language and commonly known as 'Suranjaan-e-Shirin' in Persian and in English known as 'Meadow saffron' - due to its solitary, lengthy, violet and tubular crocus like flowers with 6 bright red style branches.

Old Greek, Roman, Egyptian physicians used the plant from which colchicine is obtained as a therapeutic agent for treating the gout, 3000 years ago. Middle age Arabic and Muslim physicians such as Al-Tabri (838-870), Al-Razi (Rhazes, 860-923), Al-Zohrawi (Aibcasis, 936-1013), Al-Biruni (973-1050), Ibn-Sina (Avicenna, 980-1037), Ibn-Haitham (960-1040), Ibn-al-Nafis (1213- 1288), Ibn-Khaldan (1332- 1395), Ibn- al-Baitar (1197- 1248), and Ibn-Zohr (Avenzoar, 1091- 1161) also used the *Colchicum* to treat acute flares of gout

(Niqras). In India and Africa various preparations of *Colchicum* are still used traditionally for gastro-intestinal, musculoskeletal and dermatological diseases [1-3].

## Botanical description

*Colchicum*, Autumn Crocus or Meadow Saffron, is an annual herb with an underground bulb-like (2.5 - 6 cm), dark brown; Scaly, oval shape corm.

Fruits are 1.27 to 2.5 cm in length and containing many seeds. Seeds are 2 to 3 millimeters in diameter, maturing in summer and are ovate in shape, light chocolate to white in color and are bitter to flavor. All parts of the plant are vastly poisonous due to colchicines, mimicking arsenic poisoning.

Flowers are 2.5 to 5 cm in length and 1 to 1½ inch board, produced in autumn (August - October), 1 - 6 per bulb. Flowers are pale mauve to pinkish-purple, hermaphrodite have both male and female organs and are pollinated by flies, bees, and self.

Its perianth is funnel-shaped and golden yellow in color. Ovary is sessile, 3 celled with 3 elongated styles. Stamens are 6 in number. Capsules are septicidal with recurved beaks.

Leaves are large (15 to 35 cm) and 1/3 to 1/2 inch in Board. It is lance-shape and small appears in spring (April- July) [3].

**Types**: According to Unani literature it is dividing into two categories on basis of its taste:

1. Shirin variety - It is sweet in taste.
2. Talkh variety - It is small in size and bitter in taste [3].

## Plant profile

- **Botanical name:** *Colchicum autumnale* Linn [4-6].
- **Common name**: *Colchicum*, Golden Collyrium [3].
- **Family:** Liliaceae [4-6].
- **Vernacular names:**
  - **Arabic:** Akba, Laba, Barbariya, Qalbul Arz, Suranjan Huloo [4,7-11].
  - **Persian:** Haqeer, Surangan, Suranjan Shirin [8-11].
  - **Hindi:** Barbari, Jungali Singhara, Hirantutiya, Surinjan, Haran tutiya [4,8-12].
  - **Unani:** Falhaqeen, Bilboosa, Aqeemaroon [9].
  - **Sanskrit:** Hiranyatutha [6].
  - **English:** Meadow Saffron, Yellow Saffron [7,8,12].
  - **Kashmiri:** Virkum [6,12].
- **Part used:**
  - Root [4-6,8-11].
- **Temperament:**

- Hot in third degree and dry in second degree [4,9,10].
- Hot in second degree and dry in second degree [8,11].
- Hot in third degree and dry in third degree [14].

**Actions:**

- Phlegmagogue (Mushil-e-Balgham) [4,8-11].
- Deobstruent (Mufatteh Sudad) [4,8,10].
- Sedative (Musakkin) [4,8,9].
- Anti-inflammatory (Mohallil) [4,7,8,10-12].
- Demulcent (Mulattif) [15]
- Jazib Akhlat-e-Lazija [4,14].
- Diuretic (Mudir-e-Baul) [15,16].
- Laxative (Mulyyan) [12,15].
- Analgesic (Musakkin-e-Auja) [8-13].
- Aphrodisiac (Muqawwi Bah) [4,7-9,12].
- Carminative (Kasir-e-Riyah) [13].

**Therapeutic uses:**

- **GIT:**
- *Colchicum* acts as a stimulant on certain secreting organs. It acts as a cathartic, emetic, relieves constipation and help in expulsion of tapeworm [17].
- *Colchicum* is also used in liver and spleen troubles and is beneficial in jaundice [4,12].
- The drug is widely used for internal haemorrhoids [9,18].
- It has been used in ascites and intestinal colic [19].
- **Genito-urinary system:** It used as a diuretic [17]. Suranjan is also used in Gonorrhea and benign hypertrophy of prostate (B.P.H) [16,17]. It also increased the sexual stamina in male when used with Zanjabeel and *Piper nigrum* [4,9,18].
- **Anti-arthritic activity:** Suranjan has been used widely for gout (niqris), sciatica (Iriqun nisa), and joints pain (wajaul mafasil) since ancient times. It causes expulsion of humor causing the disease [4,7-13,18]. It is beneficial in gout when used with Sibr (*Aloe barbadensis*) and it is also known as Tiryak-e-mafasil [4].
- **Miscellaneous:** Suranjan is used in leukemia, cancer and Mediterranean fever [16]. It is also beneficial in treating skin disease [12].

**Traditional uses:** In the 1st century AD Pedanius Dioscorides, renowned Unani scholar of Roman era and the author of famous book "De Universa medicina" (Kitab-ul-Hashaish in Arabic) described about the gout (Niqras) in his book while discussing the properties of *Colchicum* and stated that more than 3000 years ago Greek physicians used the plant from which colchicine is derived as a therapeutic agent for gout (Niqras).

In middle age Arabic and Muslim physicians also used the *Colchicum* to treat acute flares of gout (Niqras). In India and Africa different

preparations of *Colchicum* are still used traditionally for dermatological, gastro-intestinal, and joint disorders [1,19,20].

**Dose:**

- ½ to 1 dirham [10].
- 2 to 3 gm [7,8,18].
- 2.5 to 3.5 gm [9].
- ½ to 3 gm [4].

**Substitute (Badal):**

- Barg-e-Hina in equal weight or Muqil Azraq half its weight for Gout [4].
- Sana-e-Makki [8].

## Chemistry

Twelve known compounds, colchicines, 2-demethylcolchicine, 2-demethyldemecoline, 2-demethylcolchifoline, 2-demethyl-lumicolchicine, lumicolchicine, demecolcine, luteolin, apigenin, n-hentriacontane, n-triacontanol and sitosterol were isolated from corms and flowers of *Colchicum autumnale* Liliaceae which was introduced from Europe. The contents of colchicines in corms and flowers of *Colchicum autumnale* were 0.015% and 0.04% respectively, and the content of demecolcine in corms was 0.043% [21].

**Colchicine:** It is an alkaloid obtained from *Colchicum autumnale* and used in gout since 1763. The pure alkaloid was isolated in 1820. Colchicine is neither analgesic nor anti-inflammatory but it specifically suppresses gouty inflammation. It does not inhibit the synthesis or promote the excretion of uric acid. Thus it has no effect on uric acid levels.

An acute attack of gout is initiated by deposition of urate crystals in the synovial fluid. They begin an inflammatory response, chemotactic factors are produced→granulocyte migration in to the joint; they phagocytes urate crystals and release a glycoprotein which aggravates the inflammation by:

1. Increasing lactic acid production from inflammatory cells → local pH is reduced→ more urate crystals are precipitated in the affected joint.
2. Releasing lysosomal enzymes which cause joint destruction.

Colchicine does not affect phagocytosis of urate crystals but inhibits release of the glycoprotein and the subsequent events. It also inhibits granulocyte migration into the inflamed joint and thus interrupts the vicious cycle. Others actions of colchicines are:

- Antimitotic: Cause metaphase arrest by binding to microtubules of mitotic spindle. It was tried for cancer chemotherapy but abandoned due to toxicity.
- Increase gut motility through neural mechanisms [22].

**Toxicology:**

- **Harmful (Muzir):** Suranjan is harmful to liver and stomach [4,7-9].
- **Corrective (Musleh):**
- Filfil- Siyah (*Piper nigrum*) [4,7].
- Zanjabeel (*Zingiber officinale*) [4,7].
- Kateera (*Sterculia urenus*) [4,7,8,18].

- Zafran (*Crocus sativus*) [4,7,8,18].

**Side effects:** Most of the adverse reactions of *Colchicum* are due to the use of its alkaloid in Allopathic system of Medicine and these can be summarized as follows [22].

Nausea, vomiting, watery or bloody diarrhea and abdominal cramps occur as dose limiting adverse effects. Accumulation of drug in intestine and inhibition of mitosis in its rapid turnover mucosa is responsible for the toxicity. Diarrhea causing dose remains constant for an individual patients.

In overdose, colchicines produces kidney damage, CNS depression, intestinal bleeding; death is due to muscular paralysis and respiratory failure.

Chronic therapy with colchicines is not recommended because it causes aplastic anemia, agranulocytosis myopathy and loss of hair.

**Contraindications:** Pregnant women: Due to its teratogenic effect [23].

**Compound (Murakkabat)** [7,8]:

- Majoon-e-Suranjan
- Habb-e-Suranjan
- Roghan-e-waja-ul-mafasi.

## Conclusion

This review discusses the chemical constituent, pharmacological and therapeutic effects of *Colchicum autumnale* as promising herbal drug because of its safety and effectiveness.

It is concluded that Suranjan has been used generously by the Unani physician. Its main action is blood purification and helps in reducing uric acid which forms the mainstay for the treatment of gout. Apart from this, the medicine has several other uses which are supported by various researches done by researcher through out of the world. Therefore the safe use of this drug should be promoted for the gain of humanity.

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