



## Mako (Solanum Nigrum): A Review

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### Abstract

Mako (Solanum Nigrum) is one of the important herb used in Unani System of Medicine for liver, kidney and gastro intestinal disorders. Mako is also known as Inabus Salab (Black Nightshade). It is found wild throughout the world. Its temperament is cold and moist in the second degree. It relieves fever and inflammation. Its paste is applied externally to reduce inflammation of stomach and liver. The actions of Mako are anti-inflammatory, Anti spasmodic, Sedative, Diuretic, laxative, antiseptic, fresh extract is used for inflammatory swelling, enlargement of liver and spleen and in cirrhosis of liver. The berries contains steroidal alkaloid glycosides, solasonine alpha and beta solanigrine.

Key words: Mako, Inabus Salab, Anti inflammatory

### Introduction

Mako (Solanum nigrum Linn) is an erect, branched, smooth or nearly smooth herb, reached up to one meter or less height. It usually grows as a weed in moist habitats in different types of soils. It has two varieties, one is bearing black colour fruit, and other one has reddish fruit.

In ancient literature of Unani Medicine it is discussed under the name of Inabus Salab. It is of different types. Mako is a small erect and delicate Unani herb. It is found all over the world. In India it grows in dry area. It is a short lived herb. Solanum Nigrum is a species in the family Solanaceae. Various chemical compounds have been identified, which are responsible for diverse activities of the plant, such as alkaloids, flavonoids, tannins, saponins, glycosides, proteins, carbohydrates, coumarins and phytosterols.

**Scientific classification**

Kingdom	Plantae
Genus	Solanum
Family	Solanacea
Species	Solanum nigrum Linn
Order	Solanales

**Vernacular Names**

Ayurvedic	Kaakamaachi, Kaakahya
Bengali	Gudakamini
English	Common Night shade
Hindi	Makoy
Urdu	Mako, Makoh
Punjabi	Maqo
Telgu	Kamanachi

**Variety**

There are two varieties of plant. One is black fruit and another is red fruit. Black Mako fruit is toxic, so ancient Unani physicians advised to avoid black fruit.

**Part Used**

The whole plant may be used for its medicinal properties including fruit (berries), flowers and leaves.

**Dosage**

Dry Mako: 5-7 gm, leave extract 40 ml-50 ml, Arq Mako 120 ml, Whole Plant 5-10 ml juice

**Mizaj (Temperament)**

Cold and dry

**Action**

Mohallil-e-Awram (Antiinflammatory), Dafe Humma (Antipyretic), Mubarrid (Refrigent), Mudir-e-Baul (Diuretic), Kasir Riyah (Carminative) , Mulattif (Demulcent), Mulaiyyin (Laxative), Munaffis (Expectorant), Musaffi-e-Dam (Blood Puifier), Musakkin Alam (Analgesic)

## Uses

- Warm Jigar (Hepatitis), Warm Rahim (Metritis), Warm-e-Ahsha (Inflammation of Viscera), Warm Meda (Gastritis), Yarqan (Jaundice), Suda (Headache).
- In Anasarca (Istisqa Lahmi) leaves of Mako are beneficial.
- In chickenpox if the rashes erupt slowly, then decoction of Mako helps in the eruption of rashes.
- Root of Mako with Jaggery induces sleep.
- Gargle of decoction of Mako is beneficial in Tonsillitis.

## Murakkabat (Unani Formulations)

- Arq-e-Mako
- Arq-e-Birinjasif
- Zimad Muhallil
- Zimad-e-Kabid
- Qurs-e-Istisqa

## Scientific studies on Solanum Nigrum

- Methanolic extract of *Solanum nigrum* (ME) was studied for its nephroprotective activity against gentamicin (100 mg/kg), induced acute renal injury in Wistar rats of either sex. In the experimental regimen, the animals were administered with ME (p.o.) at dose levels of 200-800 mg/kg (equivalent to 5-20 gm of the traditional therapeutic crude dose respectively), for 10 days. Gentamicin (100 mg/kg, i.p.) was administered in a single dose from 4th day to 8th day of the experiment. The results showed significant ( $p < 0.01$ ) reduction in the elevated blood urea, serum creatinine, uric acid and also normalized the histopathological changes. However, the results were comparatively better at 800mg/kg dose level. These findings suggest that the ME possesses marked nephroprotective activity with minimal toxicity and could offer a promising role in the treatment of acute renal injury caused by nephrotoxins like gentamicin. It is a potential plant can be used as nephroprotective agent.
- High-fat diet control group rats exhibited a significant increase in body mass index (BMI) while rats administered with leaf extracts of *Solanum nigrum* showed a reduction in BMI. Both low dose of dichloromethane (150 mg/kgbw) and high dose of methanol extracts (300 mg/kgbw) showed a better reduction in BMI than the other treatment groups. A significant decrease ( $p < 0.05$ ) on low-density lipoprotein-cholesterol, triglycerides and cholesterol was observed among the rats administered with *Solanum nigrum* extracts compared to those of HFD control. Moreover, the HFD control group significantly increased liver and adipose tissue weights compared to other treatments groups ( $p < 0.05$ ). *Solanum nigrum* also decreased glycemic levels and normalized the hepatic enzymes of HFD control. However, food intake among the groups showed no significant difference ( $p > 0.05$ ). Qualitative analysis of *Solanum nigrum* leaf extracts indicated the presence of various bioactive compounds associated with anti-obesity.
- Hepatoprotective effects of *Solanum nigrum* against ethanol-induced injury in primary hepatocytes and mice with analysis of glutathione S-transferase A1. The results of this study suggested that *Solanum nigrum* has hepatoprotective effects against ethanol-induced injury both in vitro and in vivo, and can protect the integrity of hepatocytes and thus reduce the release of liver GSTA1, which contributes to improved liver detoxification.

- In vitro cytotoxic potential of *Solanum nigrum* against human cancer cell lines. The result of this study demonstrated that *Solanum nigrum* fractions exhibited anticancer activity against hepatic and cervical cancer cell lines with non-toxic effect in normal cells. These results reveal significant potential of *S. nigrum* for the therapeutic of cancers across the globe in future.

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