Illicium verum

TAXONOMICAL CLASSIFICATION:[1]

- *Kingdom: Plantae*
- *Phylum: Spermatophyta*
- *Subphylum: Angiospermae*
- *Class: Dicotyledonae*
- *Order: Illiciales*
- *Family: Illiciaceae*
- *Genus: Illicium*
- *Species: Illicium verum*

INTRODUCTION:[2]

Star anise (Illicium verum) is an evergreen small medium sized tree from the plant family Illiciaceae. The evergreen small tree star anise usually grows upto 12-16ft height and distributed to Southeast Asia. The leaves having dimensions of 5–15 cm × 2–5 cm are lanceolate, obovate-elliptic and leathery. The flowers are pink to dim red, bisexual, axillary or subterminal, and are 1.5–4 cm, in diameter. The petals seven to twelve, extensively elliptic to broadly ovate. The carpals are 10 mm long, boat shaped, hard and wrinkled, containing a seed. The anthars have 1–1.5 mm length. The fruit is star-shaped with reddish brown color comprising of six to eight follicles that are arranged in a whorl. The seeds are shiny and brittle brown, compressed and smooth. Star anise grows in warm subtropical atmosphere. It is cold sensitive. Star anise just develops in zones where the temperature does not fall beneath 15 ºF (- 10 ºC). Star anise should be kept in a nursery in winter for growth. Star anise is propagated by seeds or cuttings. Seeds are proliferated best when temperature goes around 65 – 70 ºF (18 – 20 ºC). Seeds can sow in pots as well as outside. Seeds should be watered often to keep them wet and ensure the pot has drainage holes in the base to remove excess water. The star anise is a well-known source of carbohydrates, proteins, vitamin A and ascorbic acid. It contains proteins (2-4g), carbohydrates (65-75g), fats (4-6g) dietary fibers and sugars. Star anise is a rich source of minerals including sodium, calcium, zinc, magnesium, potassium, iron and copper etc. Almost 359Kcal energy is obtained per 100g of star anise. The aromatic odor of Illicium

verum is because of presence of essential oil which is 2.5–3.5% in the fresh fruit and 8–9% in dried material. GCMS is generally used to find out the chemical profile of essential oils. This scented volatile oil is chiefly comprises of trans-anethol and shikimic acid (3,4,5- trihydroxy-1-cyclohexene-1-carboxylic acid). Other chemical constituents including sesquiterpenes, phenylpropanoids, lignans, flavonoids, palmitic acid are also present. The cancer preventing and antiviral actions of star anise oil is because of the high concentration of transanethole.

PROPERTIES AND USES: [3,4]

- Anti-oxidant Effect
- Antibacterial Activity
- In Gastrointestinal Disorder
- Antimicrobial activity
- Insecticidal activity
- Analgesic
- Sedative
- convulsive activity
- Antiinflammatory
- Antiflu
- Antifungal Activity
- Antiviral
- respiratory tract and peptic discomforts.
- Infantcolic.

- Loss of appetite
- Menstrual disorders

SIDE EFFECTS OF EXCESS CONSUMPTION:[5]

When taken by mouth: Star anise is **LIKELY SAFE** when used as a flavoring in foods. There isn't enough reliable information to know if star anise is safe for use as a medicine. Be sure you are using Chinese star anise, not Japanese star anise. Japanese star anise is poisonous and looks identical to Chinese star anise.

When applied to the skin: There isn;t enough reliable information to know if star anise is safe to use. Some chemicals in star anise can cause skin problems including swelling, scaling, and blisters.

When inhaled: There isn't enough reliable information to know if star anise is safe or what the side effects might be.

DOSAGE: [6]

There is no proven safe or effective standard dose of star anise. If tea

- 1 cup orally once/day
- 0.5-1 g ground seed boiled in 150 mL water for 120 minutes, strain

Ground

- 3 g/day orally

Essential Oil

- 300 mg/day orally

Inhaled

- Products with 5-10% of essential oil have been inhaled.

RESEARCH:

1. Star anise is one of the vital ingredients of the Chinese medicinal herbs and is widely known for its antiviral effects. It is also the source of the precursor molecule, shikimic acid, which is used in the manufacture of oseltamivir (Tamiflu®), an antiviral medication for influenza A and influenza B. Besides, several other molecules with numerous biological benefits including the antiviral effects have been reported from the same plant. Except the antiviral potential, star anise possesses a number of other potentials such as antioxidant, antimicrobial, antifungal, anthelmintic, insecticidal, secretolytic, antinociceptive, anti-inflammatory, gastroprotective, sedative properties, expectorant and spasmolytic, and estrogenic effects. This review aimed to integrate the information on the customary attributes of the plant star anise with a specific prominence on its antiviral properties and the phytochemical constituents along with its clinical aptness. [7]
2. The study aimed at screening the inhibitory activity of *Illicium verum* extracts against avian reovirus, infectious bursal disease virus (IBDV), Newcastle disease virus (NDV), and infectious laryngotracheitis virus (ILTV). The cytotoxic and antiviral actions of 3 extracts, absolute methanol (100MOH), 50% methanol (50MOH), and aqueous extracts (WA.), were evaluated by MTT assay. The *Illicium verum* extracts were added to the cultured chick embryo fibroblast (CEF) with tested viruses in three attacks, preinoculation, postinoculation, and simultaneous inoculation. The three extracts showed antiviral inhibitory activity against all tested viruses during simultaneous inoculation and preinoculation except 100MOH and 50MOH that showed no effect against IBDV, thereby suggesting that the extracts have a preventive effect on CEF against viruses. During postinoculation, the extracts exhibited inhibitory effects against NDV and avian reovirus, while no effect against IBDV recorded and only the 100MOH showed an inhibitory effect against ILTV. The initial results of this study suggest that *Illicium verum* may be a candidate for a natural alternative source for antiviral agents. [8]
3. The anti-inflammatory activity was studied using protein denaturation assay and the results were read spectrophotometrically. The anti-inflammatory activity of the extract was studied by its ability to inhibit protein denaturation. It was effective in inhibiting heat induced albumin denaturation at different concentrations. Maximum inhibition, 77.87 ± 1.55 was observed at 500 µg/ml. Half-maximal inhibitory concentration value was found to

be 105.35 ± 1.99 µg/ml. The result obtained was compared to the commonly available nonsteroidal antiinflammatory drugs such as aspirin. [9]

PRECAUTIONS & WARNINGS: [5]

Pregnancy and breast-feeding: There isn't enough reliable information to know if star anise is safe to use when pregnant or breast-feeding. Stay on the safe side and avoid use.

Children: It is **POSSIBLY UNSAFE** to use star anise in infants. Pure Chinese star anise is commonly used in infants and has a history of safe use. However, some infants given star anise tea have had irritability, vomiting, and seizures. These symptoms are probably from contamination with toxic Japanese star anise. When star anise is contaminated with the poisonous Japanese star anise (Illicium anisatum), it can cause serious side effects in infants. It's too hard to make sure the product you are using is pure Chinese star anise. Unless it can be verified that star anise tea does not contain Japanese star anise, the tea should be avoided in infants.

REFERENCES:

1. https://www.cabi.org/isc/datasheet/28565
2. Boota, Tabinda & Rehman, Rafia & Mushtaq, Ayesha & Kazerooni, Elham. (2018). Star Anise: A review on benefits, biological activities and potential uses. 110-114.
3. https://openagriculturejournal.com/contents/volumes/V10/TOASJ-10-81/TOASJ-10-81.pdf
4. https://sci-hub.se/https://doi.org/10.1016/j.jep.2011.04.051
5. https://www.webmd.com/vitamins/ai/ingredientmono-364/star-anise
6. https://www.rxlist.com/consumer_star_anise/drugs-condition.htm
7. https://onlinelibrary.wiley.com/doi/abs/10.1002/ptr.6614
8. https://www.hindawi.com/journals/av/2020/4594635/
9. https://jprsolutions.info/files/ms-file-5ba1e056372f78.18605716.pdf