IJNRD.ORG ISSN : 2456-4184
INTERNATIONAL JOURNAL OF NOVEL RESEARCH AND DEVELOPMENT (IJNRD) | IJNRD.ORG
An International Open Access, Peer-reviewed, Refereed Journal

# EVOLUTION SOLANUM SURRATANSE FRUIT REDUCE TOOTH ACHE

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ABSTRACT
Medicinal plants are special because they can make a lot of different chemicals that have strong biological effects. A lot of research has been done on these plants, and many useful chemicals with great healing abilities have been found. Traditional medicine often uses a plant called Solanum surattense, which grows in the wild. Different parts of this plant, like roots, stems, leaves, fruits, and seeds, have chemicals that help the body in many ways. These chemicals have been studied a lot and have been shown to protect the liver, heart, and lungs, and even help keep away mosquitoes. After careful study, four special chemicals were found in the plant: diosgenin, campesterol, solasonoine, and solamargine. When these chemicals were tested against standard treatments, they showed strong healing power. Recent studies support the idea that Solanum surattense has real medicinal value.

KEYWORDS
Solanaceae,Solamargine, inflammation properties, Surratanse,toother.

INTRODUCTION
Plants have been used as a possible source of medicine because they contain a wide variety of active compounds that can help in healing. Many plants are used in traditional medicine to help with common health problems and to keep people healthy. The World Health Organization says that 80% of the world's population relies on traditional medicine [1]. Non-steroidal anti-inflammatory drugs are still commonly used to relieve pain and treat inflammation, and opiates are still effective for severe, constant pain [2]. However, these medicines can have negative side effects, which limit how much they can be used. Because of this, there is an ongoing search for safer and more effective alternatives. These medicines often come from natural sources. Medicinal plants are a key source of new chemical compounds that could have healing effects [3], and research has shown that some plants have the ability to reduce pain and inflammation [4]. Solanum surattense Burm. f. is an important plant in the Solanaceae family, and plants in the Solanum genus are known for their traditional uses and active compounds [5]. This review follows the PRISMA method, looking at scientific articles from 1753 to 2023, published in B-on, Google Scholar, PubMed, Science Direct, and Web of Science. The goal is to provide up-to-date information on where this plant is found, how it's used in traditional medicine, the chemicals in it, and its effects on the body, showing why it might be useful for herbal medicines. In traditional medicine, this plant is used for skin problems, complications from piles, and toothache [6]. The fruit is the most commonly used part of the plant (25%), followed by the whole plant (22%) for treating various illnesses. Using a decoction, which is a type of herbal preparation made by boiling parts of the plant, is the preferred method [7]. A total of 338 different chemical compounds have been found in S. surattense, including 137 (40. 53%) terpenoids, 56 (16. 56%) phenol derivatives, and 52 (15. 38%) lipids. Mixtures of different parts of the plant in water and alcohol have shown antioxidant, anti-inflammatory, antimicrobial, anti-tumor, liver-

protecting, and insect-killing effects in lab and animal studies [8]. Among the metabolites, 51 were identified and tested for their biological effects. The most commonly reported activities include antioxidant, anti-inflammatory, and antitumoral properties [9]. Clinical trials using the whole plant extract showed that it works well as an anti-asthmatic treatment. The most active compounds are mostly steroidal alkaloids and triterpenoids, such as solamargine, solanidine, solasodine, solasonine, tomatidine, xanthosaponin A–B, dioscin, lupeol, and stigmasterol. These compounds have strong biological activity, showing that this plant has great potential as a source of new herbal medicines [10]. More research and a better understanding of this plant are needed to use it safely in pharmaceuticals [11]. The World Health Organization (WHO) says that 80% of the world's population relies on traditional medicine. India has used traditional medicine for a long time, going back to ancient times [12]. Traditional medicine is still used today because it helps people heal and recover effectively [13]. There has been growing interest in medicine in recent years, with more attention being given to traditional healing methods [14]. PLANT PROFILE

S. surattense Burm. F. (Solanaceae) is a thorny, evergreen herb that grows in patches, flowering and fruiting all year round. It is found in many areas across Southeast Asia, Malaysia, Australia, and Tamil Nadu, India. This plant is commonly called "yellowberry" or "Indian nightshade" in English, and it is known as kandangatiri or kantakari in Tamil, and kateli or berkateli in Hindi [17]. Every part of the plant, including the stems, flowers, fruits, and roots, has medicinal uses. In India, the dried whole plant is used to treat leprosy, swelling, and cough. The plant has several pharmacological properties, including being a diuretic, anti-inflammatory, and anti-asthmatic, as well as having antibacterial, antifungal, pain-relieving, antihistamine, antioxidant, blood sugar-lowering, and insecticide-like effects [18,19]. Studies have shown that different parts of the plant have antioxidant, anti-inflammatory, antimicrobial, cancer-fighting, liver-protecting, and insecticide-like properties. These effects were tested both in the lab and in living organisms, and some of the chemicals in the plant responsible for these effects have been identified [20]. Two human clinical trials have confirmed that this plant is effective for treating asthma, supporting its use in medicine..

Figure 2. S. surattense Burm. F. (Solanaceae)

NEED OF THE STUDY :

Solanum surattense can help reduce pain in a way similar to NSAIDs, maybe by stopping a receptor from working or preventing the release of certain natural substances that cause pain signals. NSAIDs like Aspirin work by stopping an enzyme called COX in tissues, which reduces the production of PGE2, a substance involved in pain signals. The presence of compounds like alkaloids, saponins, and flavonoids might be responsible for these pain-relieving effects.

An experimental mouth rinse made from Solanum surattense showed much better results compared to a control group.

When used as an oral rinse, Solanum surattense showed strong pain-relieving effects right after use. This could be because the mouth lining has many blood vessels and is very absorbable.

Medicines that are absorbed through the mouth lining go directly into the bloodstream, avoiding the digestive system and the liver's first-pass metabolism.

The soft palate, under the tongue, and the inside of the cheeks are not thick and dry, making them very good for absorption. The amount of absorption depends on how thick and dry the tissue is.

MATERIALS AND METHODS:

Preparation of Extract

The fruits were cut into small pieces, dried in the shade, and then made into a rough powder. This powder was mixed with absolute ethanol and shaken occasionally. The mixture was then filtered, and the liquid was heated to remove the alcohol. Any leftover alcohol was removed by using a vacuum. This prepared extract was used for further testing.

Animals

Swiss albino mice, both male and female, weighing between 25–30 grams, were used for testing acute toxicity and pain relief.

Male Sprague-Dawley rats, weighing 150–200 grams, were used to check for anti-inflammatory effects. The animals were kept under standard conditions: room temperature of 25°C ± 1°C, relative humidity of 55% ± 5%, and a 12-hour light/dark cycle. They had free access to standard pellet food and water. Before the tests began, they were kept in these conditions for three weeks and were fasted overnight but had water available. All experiments followed the CPCSEA guidelines. The acute toxicity test was done using the up-and-down method as per OPPTS guidelines.

Drugs and Chemicals

Carrageenan was bought from Sigma Chemicals.

Other chemicals like Pentozocin, Ibuprofen, and acetic acid were of high purity.

Phytochemical Analysis

The plant's alcohol extract was tested for the presence of different plant compounds such as alkaloids, tannins, phenols, anthraquinones, saponins, volatile oils, carbohydrates, steroids, and glycosides.

METHODOLOGY

Anti-inflammatory activity

In-vitro Study

In vitro models for anti-inflammatory activity

Method involving phospholipase A2 enzyme activity

Prostaglandin synthase enzyme assay

COX Assay

Mast cell degranulation

Platelet-neutrophils adhesion

In vivo study

Model using carrageenan as an inflammatory agent

Model using kaolin as an inflammatory substance

UV-B induced redness in guinea pigs.

Carrageen-induced paw swelling model.

Cotton pellet-induced granuloma model.

**CONCLUSION**

Solanium surattense has been used in traditional Indian medicine, Ayurveda, to treat various health issues for a long time, and it is also used by people in folklore. Studies on the roots, leaves, and fruits of this plant have found that it contains secondary metabolites like flavonoids, alkaloids, phenols, saponins, glycosides, steroids, and triterpenoids. Further research on the chemical components of S. surattense has identified specific substances such as glycoalkaloid solasonine, steroid alkaloids solanocarpine, solasonine, solamargine, carpesterol, and diosgenine. Folklore claims that this plant is used to treat many ailments, which has led scientists to study its pharmacognostic properties. Although Solanium surattense has many known health benefits, including antibacterial, antifungal, antioxidant, antimalarial, antihistaminic, anti-inflammatory, and

other medicinal properties, this review focuses on its analgesic effects, especially for toothaches. This plant is particularly effective for dental problems when used in the mouth.

RESULT

S. surattense can be used safely along with other treatments to help ease pulpal pain when used as a mouthwash for symptomatic irreversible pulpitis.

This initial study suggests that Solanum surattense seed extract can be safely used as an emergency alternative mouth rinse to help reduce pain.

Surattense shows strong anti-inflammatory effects at different concentrations.

S. Surattense has strong anti-inflammatory and pain-relieving properties.

Further research supports the therapeutic benefits of the Indian medical system.

In the mouth, this medicine works well for dental issues.

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