

TO EVALUATE ANTI-INFLAMMATORY & ANALGESIC ACTIVITY OF SOLANUM SURATTENSE (TOOTHACHES)

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ABSTRACT

Purpose: To evaluate the anti-inflammatory activity of *Solanum surattense* (toothache). **Method:** Add dried *Solanum surattense* Churn (seed extract) and mustard oil to a smoking cigar, inhale the smoke through the mouth and hold the smoke for up to 10-15 minutes to expel the bugs. **Results:** *S. Surattense* exhibits strong anti-inflammatory activity at various concentrations. Some maggot-like particles were observed coming out of the mouth along with saliva and the patient experienced relief of pain and swelling within 1 hour. **Conclusion:** *S. Surattense* has strong anti-inflammatory and analgesic potential. Further research confirms the therapeutic benefits of the Indian medical system.

Keywords:- *Solanum Surattense*, Seed Smoke, Teeth and Gums, Inflammation, etc.

1. INTRODUCTION

The World Health Organization (WHO) has stated that 80% of the world's population is dependent on traditional medicine. India has had knowledge of traditional medicine and its practices since ancient times. The continuity of traditional medical practice is preserved today due to its potential for healing and effective recovery. Increased interest in medicine in recent years. increased attention toward the medicine.

S. surattense Burm. F. (Solanaceae) A thorny perennial herbaceous plant that forms spots, flowers and bears fruit throughout the year. It is common in all parts of Southeast Asia, Malaysia, Australia and Tamil Nadu, India. The plant is known in English as "yellowberry". nightshade/Indian nightshade", also known as kandangatiri/kantakari in Tamil and kateli/berkateli in Hindi[4]. All parts of plants such as stems, flowers, fruits and roots have medicinal properties. In India, the dried whole plant is used to treat leprosy, dropsy, and cough. Pharmacological properties associated with this plant include diuretic, anti-inflammatory and anti-asthmatic, antibacterial, antifungal, antinociceptive, anti-histaminic activity, antioxidant, hypoglycemic and larvicidal properties[3,23].

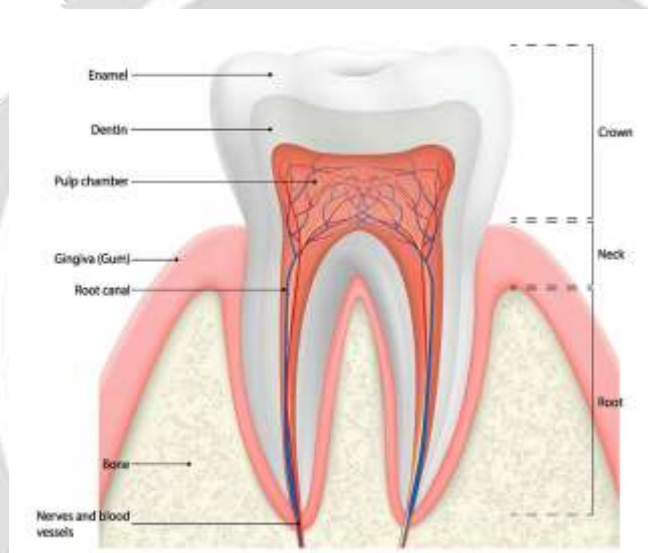


Fig 1. Various activities of *S. surattense*

S. Surattense are berry-shaped, 1.3-2.0 cm in diameter, yellow or white with green veins, surrounded by enlarged calyxes. Seeds are 0.25 cm in diameter, glossy, smooth, almost kidney-shaped, yellowish brown. *Solanum surattense* has been reported to contain a number of alkaloids, sterols, saponins, flavonoids and their glycosides, tannins, and gums[5]. A component of the extract most likely induces NSAID-like analgesia by inhibiting the production and release of prostaglandins or by blocking their receptors. It contains carpersterol, solanocarpine, solazonin, solamargin and β -solanargin, with solanine being the major alkaloid of kantkari.[1,2]

Tooth decay: -

Toothache is the most common cause of mouth pain. Several studies examining the impact of dental and facial pain have highlighted the direct impact of dental and oral disease on the quality of social life. A wide range of toothache prevalences ranging from 5% to 88% have been reported. Toothache is recognized as a public health problem. A recent study of children and adolescents found that, overall, about one in ten patients complaining of pain suffered from toothache. Tooth decay, also known as tooth decay or tooth decay, is caused by a combination of factors such as bacteria in the mouth, frequent snacks, sugary drinks, and improper brushing. Tooth decay can be caused by the form of plaque, plaque attack, ongoing tooth decay, location of teeth, certain foods and drinks, frequent snacking or swallowing, feeding baby at bedtime, improper brushing, lack of fluoride intake, dry mouth, heartburn, worn fillings or dental apparatus, eating disorders, etc[2,6].



Oral health refers to the health of our teeth, gums and the entire orofacial system that enables us to laugh, speak and chew. Other most common diseases that affect oral health include tooth decay (cavities), gum disease (periodontal disease), and oral cancer. More than 40% of adults have reported mouth pain in recent years, and more than 80% of people will develop at least one mouth sore by the age of 34. Holding the smoke in your mouth for 10-15 minutes will get the bugs out of your mouth and cure your toothache.[8,12]

2. INGREDIENTS AND METHODS: -

Seeds are obtained after ripe dried berries are crushed and peeled. Fresh seeds are dried in the shade and stored in clean, dry containers for future use. Divide about 1 teaspoon of seeds into 4 equal parts when applying. Drop about 2ml of mustard oil into a hot pan and add some seeds to it. As soon as the oil and seeds touch the hot pan, smoke begins to rise. This smoke is inhaled by mouth for a few seconds[9]. A rough clay tube, wide at one end and narrow at the other, resembles a clay tube and is also used to draw smoke from a hot stove into the mouth. Therefore, all four parts of the seed are used for fumigation every few minutes. During treatment, the patient holds his mouth open over a bowl filled with water. Excretion of larvae-like particles, which may be sediment or the like, was observed with saliva, and the patient reported a decrease in pain and swelling within a few hours[2,8].

Seed extract relieving partial cord pain is an in vivo study. This study was presented and approved by the Institutional Review Board of SRM University.



Fig 3. *Solanum surattense*: (A) habitat, (B) flowering, (C) matured plant with ripened fruits, and (D) root system

3. EXPERIMENTAL MOUTHWASH: -

Solanum surattense powdered dried seeds were purchased commercially. *S. surattense* 5 g Powdered dried seeds of *Solanum surattense* were obtained commercially[10]. 5 g C Suraten powder was mixed with 50 ml of distilled water and stirred for about 10 seconds with a stirrer, to obtain a 10% solution. This study included patients who applied to the Department of Conservative Dentistry and Endodontics with a diagnosis of toothache and symptomatic irreversible pulpitis[17,21]. The procedure was explained to the patient and informed consent was obtained. The study included teeth with wide open caries and overt pulp exposure with moderate to severe pain on the HP-VAS scale from 85 mm to 144 mm. Patients with systemic disease, drug and/or alcohol addiction were excluded from the study[10,25]. A total of fifty patients, divided randomly into two groups of 25 each (experimental and placebo) using simple randomization procedure (sealed envelopes) were involved in the study (Figure 4). Pain intensity was recorded using HP-VAS before the procedure. The patient was asked to hold the freshly prepared herbal solution in the mouth for about 2 minutes and then rinse the mouth for 1 minute[22,26]. Stained distilled water was used as a control. After rinsing, pain intensity was re-registered using the HP-VAS scale. HP-VAS scores were tabulated. Data showed a normal distribution and were statistically analyzed using paired (within-group comparisons) and unpaired t-tests (between-group comparisons) at a significance level of 5%. [1,23]

4. CONCLUSION: -

Although *solanum surattense* is one of the drugs with antibacterial, antifungal, antioxidant, antimalarial, antiasthmatic, anti-inflammatory and many other pharmacological properties, the above review contains information about the analgesic activity of *solanum surattense*. Especially for toothaches. In the cavity, this drug works best for dental problems.

5. RESULT: -

Testing in this pilot study showed that 68% of patients in the study group experienced pain relief after using the experimental mouthwash (Table 1). There was no statistical significance in the baseline HP-VAS score [9] between the two groups (unpaired t-test). As a result of comparing the VAS scores of each group before and after rinsing (paired t-test), a high level of significance was shown at $p = 0.000$ (Table 2). A significant difference was also observed in VAS scores after rinsing between the placebo and Solanum surattense groups ($p=0.0327$ unpaired t-test).[1]

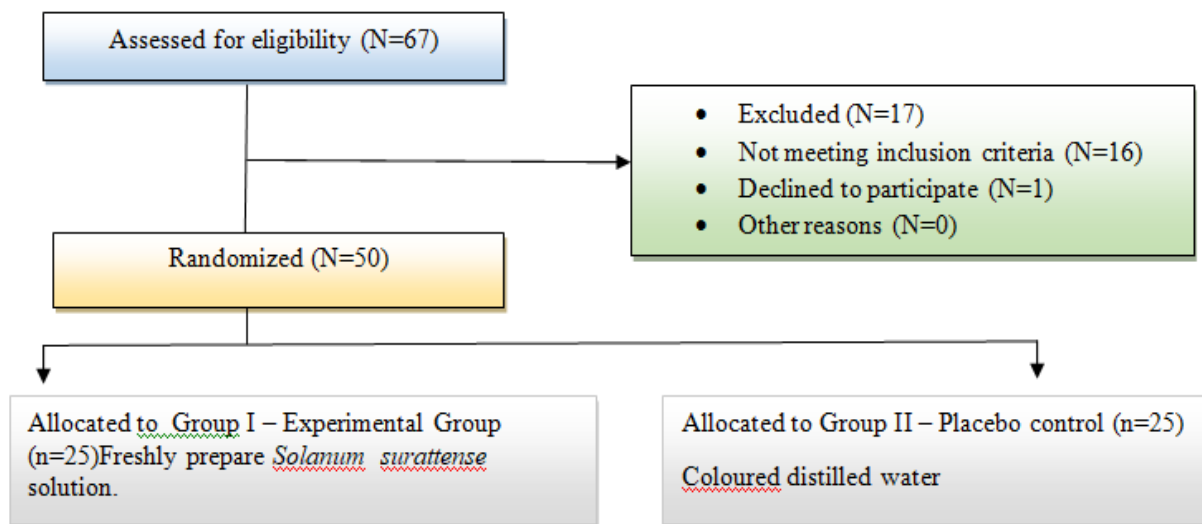


Fig 4. Flow Chart of the in-vivo study

Intensity of Pain (HP-VAS Scale) mm	Experimental Group			Placebo Group		
	Total (25 Subject)	Reduction of Pain	No Reduction of Pain	Total (25 Subject)	Reduction of Pain	No Reduction of Pain
Moderate (85mm)	11	8(32%)	3(12%)	13	4(16%)	9(36%)
Severe (114mm)	11	8(32%)	3(12%)	7	3(12%)	4(16%)
Intense (144mm)	3	2(8%)	1(4%)	5	3(12%)	2(8%)
% of Total	100%	68%	32%	100%	40%	60%

Table 1: Comparison of post rinse percentage reduction of pain in subjects of experimental & placebo groups

Groups		Mean(mm)	SD	P- Value
Experimental Group	Pre- rinse	107.32	18.814	0.000
	Post-rinse	65.36	29.203	
Placebo Group	Pre-rinse	104.76	17.709	0.000
	Post-rinse	82.52	25.878	
(Significance level $P<0.05$)				

Table 2: Comparison of pre and post rinse VAS Score of Experimental & Placebo Group**6. CLINICAL EXPERIENCE: -****6.1 Anti-inflammatory activity: -**

The fruit of *S. Surattense* is used as an anti-inflammatory agent used in traditional medicine. A synergistic anti-inflammatory effect of *S. surattense* was also observed in *Cassia tora* (1:1 combination), and the efficacy was diclofenac sodium (81%) in the standard formulation, but not in *S. surattense* alone. at 66.41%. Severe steroid compounds isolated from *S. surattense*, stigmasterol, carpesterol and diosgenin have also been reported to have anti-inflammatory activity. Of these three, diosgenin was found to have significant anti-inflammatory effects[2,15,16].

6.2 Analgesic action (reduction of toothache)

S. Surattense is used to treat toothache and gum swelling pain. In an experiment on patients suffering from cavities, pain, and pus, it was found that 75% were cured in 3 to 4 hours[4,25]. Effective results are shown in patients suffering from tooth decay accompanied by severe swelling and pain. Studied 50 patients suffering from dental problems such as pulpitis in *S. Surattense* Seed Extract. Survey results showed that 68% of patients in the experimental group experienced relief after treatment[4,11].

6.3 Anti- Bacterial Activity: -

These data confirm the efficacy of *S. surattense* seeds in the treatment of antibacterial activity where ethanol extract of *Solanum surattense* is used to treat various infections in folk medicine. Antibacterial activity against *Staphylococcus aureus* and *Streptococcus* sp.; *Bacillus subtilis*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Salmonella typhi*, *Shigella dysenteriae* and *Vibrio cholera*[2]. Ethanol was a suitable solvent for extraction. However, further studies including toxicity evaluation of medicinal *Solanum surattense* extract and purification of active antibacterial components are needed[7,27].

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