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Drug Review on Siddha Herbal Formulation – Sombu Theeneer in Combating Sinusitis

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Abstract: Siddha is an ancient Indian system of medicine emerged in South India. In siddha system of medicine the diseases are classified into 4448 types on the basis of Mukkutram (three humours). The Siddha formulation *Sombu Theeneer* found in the sastric text book *Siddha Vaithya Thirattu*, is indicated for *Sinusitis*. This review explores the substantiated literature evidence on therapeutic effectiveness of *Sombu Theeneer* in sinusitis. It was executed by scrutinizing Siddha literature from the library of National Institute of Siddha, databases such as PubMed Central, Google Scholar, National Library of Medicine (NLM), Science Direct, Embase, Mendeley etc. The drug is proved to be a harmless and effective drug in the treatment of sinusitis through scientific evidences. A large scale clinical trial is crucial to assess the clinical outcomes to show the effectiveness of drug.

Keywords: Siddha, Herbal formulation, *Sombu Theeneer*, Sinusitis, Peenisam

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Introduction

Siddha medicine is a classical system of traditional medicine emerging in ancient Tamil Nadu in South India which comes under AYUSH. The theory of siddha medicine is established from 96 theories. In siddha, there are 32 internal and 32 external medications accessible for the treatment. Theeneer (distillated liquid) is one of the internal medicines in which coarsely grounded drugs are immersed in water for about 8 h then it is distilled into the distillation apparatus (Thiyagarajan, 2004).

According to Siddha literature, Peenisam is clinically correlated with sinusitis in modern medicine. Intake of cold water, exposure to chillness, inhalation of smoke, harmful and offensive gases, insomnia, speaking in loud voice, using contaminated water for bath, suppression of 14 natural urges (particularly vomiting and tears),

improper yoga practice which increases the body heat are the triggering factors to cause this disease (Kuppusamy Mudaliyar, 2016).

In Siddha, several drugs are specified for the management of Peenisam (sinusitis). This article reveals the detailed review of the Siddha herbal formulation *Sombu Theeneer*, which is quoted in the Siddha classical text *Siddha Vaithya Thiratu* indicated for *Peenisam* (sinusitis) (Kuppusamy Mudaliyar and Uthamarayan, 2009). The main objective of the review was to signify evidence for the therapeutic effectiveness of the *Sombu Theeneer* and its pharmacological action, medicinal uses and scientific review for management and prevention of sinusitis.

Scientific evidence on Pharmacological activities of *Sombu Theeneer* was systematically reviewed by searching relevant articles from electronic search engines, databases such as PubMed Central, Google Scholar, National Library of Medicine (NLM), Science Direct, Embase, Mendeley etc. Information from Siddha literatures on herbal medicines were retrieved from the library of National Institute of Siddha, Chennai, India.

Standard Operating Procedure for Sombu Theeneer:

Required raw drugs:

1. Sombu (*Pimpenella anisum*) - 20 *ser* (560 g)
2. Water - 1 *padhaku* (10.7 litres)

Purification of trial drug:

Sombu: Dust particles are removed and dried under sunlight.

Method of preparation:

The above said drug Sombu is grounded coarsely and immersed in water for about 8 h then it was distilled into the distillation apparatus finally theeneer is collected.

Dosage and duration:

Araikaal to kaal aazhaaku (21 – 42 ml) with equal quantity of water twice daily. The duration is 48 days.

Details of the drug:

Botanical Name: *Pimpenella anisum* Linn (Table 1); Synonyms: Perunjeeragam, Venseeragam, Sombu (Murugesa Mudaliyar, 2002); Vernacular Names: English- Anise seeds, Anise fruit; Sanskrit- Sthula-jeerakam (Murugesa Mudaliyar, 2002).

Table 1: Taxonomic hierarchy of Anise seeds (Sankaranarayanan, 2009)

Kingdom	Plantae
Class	Dicotyledonae
Order	Apiales
Family	Apiaceae
Genus	*Pimpenella*
Species	*anisum*

Habitat:

It is an annual grassy herb, grown upto 30 to 60 cm height with three leaflets. The flowers are white, small and compound umbel inflorescence. The fruit is pyriform with lateral compression, 2 to 3 mm wide and 3 to 5 mm in length, greyish green to greyish brown in colour. The mericarp is ovoid, five ridged with short hairs and multiple vittae. It is widely cultivated in USSR, Southern and Central Europe, North Africa, South America and Mexico (Ivan, 2001)

Importance of various chemical constituents of anise seeds is depicted in Table 2. Table 3 illustrates the taste, parts used and action of *Pimpenella anisum* (Murugesa Mudaliyar, 2002). Sombu has acrid with a sweet taste and hot potency, these properties neutralize the kabam humour. It reduces the signs and symptoms of Peenisam (sinusitis) in Siddha system of medicine.

Ethnomedicinal uses of the drug:

Siddha literature details the usage of anise seeds for sinusitis, vaginal diseases, peptic ulcers, fever, indigestion, cough, liver diseases and bronchial asthma. It is also beneficial in PCOS. The distillate of its flower has anti-diarrhoeal activity and anti-heminthic activity especially for children (Murugesa Mudaliyar, 2002). The hot water extract from the fruit along with ginger is consumed in oral route in the time of menstruation to stimulate pregnancy (Hunte *et al*.,

Table 2: Importance of various chemical constituents of Anise seeds

Active constituents Ivan (2001); Shojaii and Abdollahi Fard (2012)	**Pharmacological activity**
Trans anethole	Anti genotoxicity, anti inflammatory, neuro protective, anti oxidative (Abraham, 2001; Ryu *et al*., 2014; Kim *et al*., 2017)
Methylchavicol	Anti microbial activity (Miguel *et al*., 2010)
Anisaldehyde	Acaricidal activity (Lee, 2004)
Estragole	Gastro protective activity, anti microbial activity, anti oxidant activity (Shahat *et al*., 2011; Júnior *et al*., 2020)
Coumarins	Anti breast cancer activity, antiviral, antibacterial, antifungal, antiparasitic, analgesic, anti inflammatory, anticoagulant, anti oxidative, anti neurodegenerative, anti depressive and antidiabetic (Musa *et al*., 2008; Peng *et al*., 2013)
Scopoletin	Antimicrobial, analgesic, anti-inflammatory, anti-oxidant, anti-amyloidogenic, anti-aging, anti-cholinesterase, diuretic, anti-tumor, hepatoprotective, cardioprotective (Parama *et al*., 2022)
Umbelliferone	Anti-inflammatory, anti cancerous, anti diabetic, molluscicidal (Mazimba, 2017)
Bergapten	Anti histamine , antimicrobial, neuroprotective, anti cancer, anti inflammatory, anti diabetic (Adakudugu *et al*., 2020; Liang *et al*., 2021)
Eugenol	Anti viral, anti inflammatory, anti bacterial, anti oxidative (Pavithra, 2014)
Xanthotoxin	Anti cancerous, anti leucodermal (Hafez *et al*., 2009)

Table 3: Describes the ingredient of Sombu Theeneer with the taste of the drug, its five element perspective, parts used and actions of the drug- siddha medicine concepts

S. no.	**Name of the drug**	**Taste**	**Pancha bootham**	**Parts used**	**Actions**
1.	*Pimpenella anisum* Linn (sombu)	Acrid with sweet taste	Fire + air Earth+ water (Shanmuga Velu,2006)	Flower, Root, Seeds	Carminative Stomachic

1975). The dried fruit decoction is used in the treatment of diarrhoea, urinary tract and respiratory infections (Perez and Anesini, 1994). The hot water extract from the seed is consumed for bronchial asthma (Dermarderosian, 1977).

The ingredient of the drug, '*Sombu Theeneer'* is a part of the Siddha therapeutics employed in treating various conditions. They are additional part of the cuisine in Southern India. Anise seed has acrid with a sweet taste and hot potency, these properties neutralize the kabam humour. It reduce the signs and symptoms of sinusitis in siddha system of medicine. The individual drug screened for secondary metabolites showed significant presence of pharmacologically active phytoconstituents. In hyperglycemic patients, it possess hypolipidemic as well as hypoglycemic actions, also decreases lipid peroxidation (Rajeshwari *et al*., 2011). Additionally, anise seeds reduced morphine dependence (Sahraei *et al*., 2002) and showed anticonvulsant effect (Heidari and Ayeli, 2005). Anise seed possess valuable actions on menopausal hot flashes (Nahidi *et al*., 2008) and dysmenorrhea (Khoda Karami *et al*., 2008). The primary compounds of essential oil of anise seeds are anisaldehyde, estragole, trans-anethole, methyl chavicol and γ-hymachalen. The pharmacological activities of the drug showed

anti-microbial, anti-inflammatory, anti histamine, anti cancerous, anti-oxidative, neuroprotective, anti-genotoxicity, acaricidal activity, anti-coagulant, analgesic, hepatoprotective etc.. The herbal ingredients of '*Sombu Theeneer'* did not show signs of toxicity and ensured safety for clinical usage (Kalpana, 2017). '*Sombu Theeneer*' has evinced to be a safe and potent Siddha drug against sinusitis.

Conclusion

Analysis of Siddha drug *Sombu Theeneer,* clearly reveals its pharmacological efficacy and therapeutic usage which plays an important role in sinusitis. Its anti inflammatory properties helps in reducing the inflammation of sinuses. Sombu Theeneer also acts as a good immune-modulator. Hence, the Siddha drug *Sombu Theeneer* has to be subjected to further clinical research in treating sinusitis in view of the efficacy and safety profile.

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