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A REVIEW ON ANTI-ULCER ACTIVITY OF POLYHERBAL SIDDHA FORMULATION “YELATHY CHOORANAM”

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ABSTRACT: Peptic Ulcer Disease (PUD) is an inflammation along the mucosal lining of esophagus, stomach or duodenum or anywhere in the gastrointestinal tract. PUD is the most common gastrointestinal disorder in clinical practice because of alteration in lifestyle and food habits. The main symptoms related to PUD are Indigestion, heartburns, burning pain or abdominal pain, nausea, vomiting, constipation, bloating of stomach and abdomen, not feeling of well in both body and mind. In severe cases, symptoms can be dark or black stool (due to bleeding), vomiting blood (look like “coffee-grounds”), Weight loss, and severe pain in the mid to upper abdomen. The most important complications are Hemorrhage, Bleeding, Perforation (a hole through the wall of the stomach), Gastric outlet obstruction, if not treated properly. The drugs like Antacids, H₂ Receptor antagonist and Proton pump inhibitors are used for PUD all around world widely to relieve the symptoms by the allopathic medicine side. Many of Medicinal plants are used for their anti-ulcer, anti-secretory & Gastro-protective property by the practitioners of herbal medicine. In that way, the Siddha medicine is one kind of the oldest medical system practiced by southern regions of India. The treatment of PUD in Siddha system is very inexpensive, with none of the adverse effects when long-standing usage. The author of this paper determined to review the proven Siddha Sasthric Polyherbal formulation “YELATHY CHOORANAM” proof from Classical text ‘Agasthiyar Vaithya Raththina Surukkam.’ It helps to regulate and propagate this Sasthric formulation for the society suffering from PUD.

INTRODUCTION: Peptic Ulcer Disease (PUD) is becoming a dreadful disease with an increase in the number of hospital admissions and diseases of civilization. Thus urbanization with changing lifestyles like cigarettes and spicy foods and emotional factors like anxiety, stress, and strain are instrumental in aggravating peptic ulcers ¹.

Ulcers are an open sore of the skin or mucous membrane characterized by sloughing of inflamed dead tissue ². Current treatment regimens concentrate on eradication of *H. pylori* bacteria, less use of NSAID'S, use of antibiotics, H₂ blockers, proton pump inhibitors, changes in lifestyle and dietary habits ³. Siddha formulations are presented in the books of Gunavagadam (Siddha pharmacology) quoted by Siddhars.

Various Siddha formulations are offered for the treatment of PUD ⁴. PUD is common in India; the Indian pharmaceutical industry has 6.2 billion rupees drugs share of antacids and antiulcer drugs and occupy 4.3% of the market share ⁵.



A peptic ulcer is one of the world's major gastrointestinal disorders and affecting 10% of the world population ⁶. About 19 out of 20 peptic ulcers are duodenal. An estimated 15000 deaths occur each year as a consequence of peptic ulcer. Annual incidence estimates of peptic ulcer hemorrhage and perforation were 19.4-57 and 3.8-14 per 100,000 individuals, respectively. The average 7-day recurrence of hemorrhage was 13.9%, and the average long-term recurrence of perforation was 12.2% ⁷.

Various anti-ulcer drugs are available in the market such as H₂ receptor antagonist, Proton pump inhibitors, 5-HT₄ receptor agonist, cytoprotective, healing agents, etc. The adverse effects of these drugs are cardiac arrhythmias, blood dyscrasias, hypertension, central nervous system and gastrointestinal disturbances, nephritis, impairment of sexual drive, hepatitis, pancreatitis, increased liver enzyme activity and triglycerides, leucocytopenia and thrombocytopenia, pharyngitis, pruritis and electrolyte imbalance ⁸. Sage Yugi, the founding Father of Siddha pathology, has classified the conditions of the acute and chronic abdomen into eight broad types under the title 'Gunman'.

Siddha medicine is a natural healthcare system. Its main objective is to achieve optimal health and well-being through a comprehensive approach that Pulse reading (*Nadi parisothanai*), Eightfold diagnostic procedures (*Envagai thervu*), Addressing the mind & behavior (*Antha karanam*), body constituents (*Udarkattugal*) and environment (*Thinai*), etc. Apart from treating diseases; Siddha system of medicine, emphasizes prevention and health promotion. And also introduce dietary and lifestyle recommendations to the patients ⁹.

Ingredients of the Formulation: The Polyherbal Anti-Ulcer Siddha formulation "Yelathy Chooranam" contains 7 drugs. And their descriptions are given below.

Yelam	- <i>Elettaria cardamomum</i>
Kirambu / Lavangam	- <i>Syzygium aromaticum</i>
Milagu	- <i>Piper nigrum</i>
Lavanga Pattai	- <i>Cinnamomum zeylanicum</i>
Thalisapathri	- <i>Taxus buccata</i>
Chukku	- <i>Zingiber officinale</i>
Koogaineeru	- <i>Curcuma angustifolia</i> (Arrow root)

TABLE 1: ABOUT THE INGREDIENTS OF "YELATHY CHOORANAM"

S. no.	Tamil Name / Common Name	Botanical Name / Family	Actions	Uses in Siddha System of Medicine ¹⁰
1	Yelam	<i>Elettaria cardamomum</i> / Zingiberaceae	Stomachic, carminative, resolvent, stimulant	PUD, Cough, diarrhea, phlegm, dysuria, oligospermia.
2	Kirambu / Lavangam	<i>Syzygium aromaticum</i> / Myrtaceae	Stomachic, carminative, Anti-spasmodic	Diarrhea, vomiting, dysentery, sinusitis, odontalgia
3	Milagu	<i>Piper nigrum</i> / Piperaceae	Carminative, antispasmodic, digestive, expectorant, laxative, acrid, anthelminthic	Fever, anemia, phlegm, PUD, piles, dyspepsia, cough, loss of taste
4	Lavanga Pattai	<i>Cinnamomum zeylanicum</i> / Lauraceae	Stimulant, carminative, Aphrodisiac	Cough, Asthma, Abdominal discomfort, Snake bite
5	Thalisapathri	<i>Taxus buccata</i> / Taxaceae	Stimulant, carminative, Tonic, Expectorant	Diarrhea, vomiting, Cough, Asthma, dyspepsia, belching, Fever
6	Chukku	<i>Zingiber officinale</i> / Zingiberaceae	Stimulant, carminative, Stomachic	PUD, Cough, Cough, Asthma, Sinusitis, dyspepsia, Fever, anemia
7	Koogaineeru	<i>Curcuma angustifolia</i> / Zingiberaceae	Nutritive, Alternative, Tonic	As a binding agent, and nutritional substitute

Pharmacological Studies:

1. *Elettaria cardamomum*: ¹¹ The anti-Ulcer activity of Petroleum Ether extract of the herb *Elettaria cardamomum* was studied aspirin and ethanol-induced acute ulcer rat models. Petroleum Ether soluble fractions of *Elettaria cardamomum* showed significant inhibition of ulceration by 100%.

The results obtained from an experimental model of ethanol-induced acute ulcer in rats showed 76.36% protection when 50 mg/kg essential oils of *E. cardamomum* were administered. It has been reported that petroleum ether soluble fractions (PS) of methanolic extract and essential oils (EO) showed a significant antiulcerogenic effect in aspirin and ethanol-induced ulcers, fractions of

small cardamom were found to be better than large cardamom. There was also significant results in statistically ($p < 0.001$), ($p < 0.05$, in comparison with control). Finally, it was concluded that the petroleum ether extract of *Elettaria cardamomum* possesses anti-ulcer activity.

2. *Syzygium aromaticum*:¹² The anti-Ulcer activity of Eugenol derived from the herb *Syzygium aromaticum* was studied ethanol-induced ulcer rat models. In the ethanol ulcer model, eugenol at 50 mg/kg did not display a significant activity whereas its two higher doses (100 and 250 mg/kg) and the oil (50, 100, and 250 mg/kg) significantly reduced the lesion area (in absolute terms and expressed as percentage) and the ulcer lesion index when compared with the control group. The curative ratio obtained for eugenol 50, 100, and 250 mg/kg was 9%, 72%, and 95%, respectively.

For the essential oil, at the same doses, the curative ratio was 38%, 76%, and 81%, respectively. Omeprazole 30 mg/kg, which was used as a positive control, showed a curative ratio of 59%. So, it was decided that the Eugenol derived from *Syzygium aromaticum* has significant anti-ulcer activity when compared with the standard drug.

3. *Piper nigrum*:¹³ The study was carried out to know about the anti-Ulcer activity of Aqueous extract of the herb *Piper nigrum* along with *Ferula foetida* (AEPF) in cysteamine-induced duodenal ulcer rat models. In the cysteamine-induced duodenal ulcers, oral administration of AEPF at the dose of 100 mg/kg, 200 mg/kg and 400 mg/kg showed a reduction in ulcer index in a dose-dependent manner. AEPF 400 mg/kg produced a statistically significant reduction in ulcer score as compared to ulcer control animals. The results in pyloric ligation model showed a significant reduction in basal gastric secretion and inhibition of ulcers by aqueous extract of *Piper nigrum* and *Ferula foetida* (AEPF). This suggested that the antiulcer activity of AEPF on gastric mucosa may be due to the reduction of gastric secretion. The aqueous extract of *Piper nigrum* and *Ferula foetida* at a dose of 400 mg/kg has significantly reduced the incidence of ulcers. So, the experimental results suggested that the aqueous extract of *Piper nigrum* and *Ferula foetida* (AEPF) has significant antiulcer activity.

4. *Cinnamomum zeylanicum*:¹⁴ The anti-Ulcer activity of Cinnamon suspension (ASC) from the herb *Cinnamomum zeylanicum* was studied indomethacin-induced ulcer rat models. The cinnamon suspension was administered (250 and 500 mg/kg, orally) 30 min before indomethacin. ASC in doses of 250 and 500 mg/kg produced significant dose-dependent decrease in the volume of basal gastric secretion ($p < 0.001$) and ulcer index ($p < 0.001$). Pretreatment of the animals with cinnamon suspension effectively reduced ($p < 0.05$) the intensity of ulceration at a dose of 500 mg/kg dose. Although, there was a decrease of the ulcers in the animal models that received cinnamon in a dose of 250 mg/kg, this ulcer prevention was not statistically significant ($p < 0.001$).

5. *Taxus baccata*:¹⁵ The study was carried out to know about the anti-inflammatory and anti-nociceptive activity of lignan compounds of the herb *Taxus baccata* in carrageenan-induced hind paw edema mice and benzo-quinone induced abdominal contractions. All the compounds showed to possess significant antinociceptive activity against benzo-quinone induced abdominal contractions, while only lignan derivatives significantly inhibited carrageenan-induced hind paw edema in mice. $p < 0.05$ was considered to be significant ($*p < 0.05$; $p < 0.01$; $p < 0.001$).

Two of the studied lignans; lariciresinol (5) and iso lariciresinol (8), were reported to possess potent *in-vitro* inhibitory effect on TNF- production, a pro-inflammatory cytokine and thus lignan derivatives in the present study might show their anti-inflammatory effects *via* the same models. So, it was established that *Taxus baccata* possesses significant antinociceptive and anti-inflammatory activities which support the traditional utilization.

6. *Zingiber officinale*:¹⁶ The gastroprotective effect of aqueous extract of root of Ginger (*Zingiber officinale*) was studied using the model of indomethacin-induced gastric damage and compared with omeprazole as a standard drug. *Zingiber officinale* (200 mg/kg or 400 mg/kg) or omeprazole (10 mg/kg) were administered alone in separate group of rats. The percentage inhibition of gastric ulcers was 40.91%, 57.58% and 65.91% by ginger 200 mg/kg and ginger 400 mg/kg and omeprazole respectively.

This showed that ginger root extract significantly inhibited the gastric damage induced by indomethacin and its efficacy as a gastroprotective agent was comparable to that of omeprazole. So, it was finalized that the ginger root showed significant antiulcerogenic activity in the models studied, and it can be a promising gastro-protective agent.

7. *Curcuma angustifolia* (Arrowroot): ¹⁷ It is potential as a source of nutrition and as a non-irritating diet for patients suffering from specific chronic ailments, recovering from fevers, or experiencing irritations of the gastrointestinal tract, the lungs, or the excretory system. The rhizomes of *Curcuma angustifolia* can be used on the external surface of the body, as well as internally to promote healing. It can be used to heal peptic ulcers, beneficial in treatments of dysentery, diarrhea, and colitis, and is often employed as an herbal tonic for patients suffering from tuberculosis.

It is also used to soothe coughs, and as such is used to treat bronchitis. Also, scientists have extracted the starches within the flour produced by the ground rhizomes of *C. angustifolia* and compared it to corn starch. Its binding and disintegration properties make it a viable, and perhaps superior, substitute for cornstarch as an excipient in medicinal tablets.

CONCLUSION: Siddha system of medicine has a rich collection of herbal and herbo-mineral formulation for various chronic ailments like PUD, arthritis, Bronchial asthma, Diabetes, etc. The awareness about Siddha medical system is increasing day-by-day. The whole world needs better treatment aspects for chronic ailments without any adverse event and unwanted reactions. On this way, 'Yelathy Chooranam' is a wonderful remedy for PUD and also cost-effective. And the drug has been used for PUD in all Govt Hospitals all over Tamil Nadu and by the practitioners of Siddha Medicine.

This review article reclaimed the proven Anti-ulcer effect of 'Yelathy Chooranam' which is beneficial for the complete society.

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