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A REVIEW ON ANTI –ULCER HERBS IN SIDDHA MEDICINE

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Abstract: Peptic ulcer disease (PUD) is the most common and serious gastrointestinal disorder on clinical practice. Peptic ulcer is a sore in the lining of stomach or duodenum or anywhere in the gut. If peptic ulcers are found in the stomach, they are called gastric ulcers. If they are found in the duodenum, they are called duodenal ulcers. The symptoms related with PUD are dyspepsia, burning pain in the gut, heartburns, vomiting after or before meal, constipation, not feeling of well. The drugs like Antacids, H₂ Receptor antagonist and Proton pump inhibitors are used for PUD all around world widely. The use of medicinal plants becoming more popular due to the adverse effects of such allopathic drugs. Now a day's world population evolution towards herbal remedies for complete healing of such tragic ailments. Many herbs are used for their anti-ulcerogenic, anti-secretory & Gastro-protective property. Siddha medical system is one of the most famous Indian systems of medicine. It is helpful in treating the diseases using herbs, inorganic substances and animal products. Many of the Siddha medicinal plants possess the anti-ulcerogenic property and they are commonly used in southern regions of India as home remedies. Siddha system has better remedies for the treatment and management of Peptic ulcer. This article reviews the gastro-protective and/or anti-ulcer properties of the most commonly employed herbs in Siddha medicine. This review may be supportive for the researchers, academician and clinician about the promising Siddha herbs having anti-ulcer property. This review has offered the recent advancement of herbs in Siddha medicine as an antiulcer agent, with the vision to support the further research and also to give permanent resolution for the society.

Keywords: Anti-Ulcer activity, pyloric ligation method, Siddha herbs.



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INTRODUCTION

Herbal medicine is being used largely about decades for the treatment of Peptic ulcer. Plants are the only economic source of a number of well-established and important drugs. In addition, they are also the source of chemical intermediates needs for the production of some drugs^[1]. Siddha formulations are presented in the books of Gunavagadam (Siddha pharmacology) quoted by siddhars. Various Siddha formulations are offered for the treatment of PUD. Advanced researches are going in Siddha Pharmacology to prove the efficacy of the siddha drugs for various chronic non-communicable diseases and also in communicable diseases. Peptic ulcer is one of the major gastrointestinal disorder in clinical practice which occurs due to an imbalance between the offensive (gastric acid secretion) and defensive (gastric mucosal integrity) factors consequently, reduction of gastric acid production as well as re-enforcement of gastric mucosal production has been the major approaches for therapy of peptic ulcer disease. Peptic ulcer is becoming a dreadful disease with an increase in the number of hospital admissions and diseases of civilization^[2]. Considering the several side effects of modern medicine indigenous drugs with fewer side effects should be looked for as a better alternative for the treatment of peptic ulcer^[3]. An estimated 15,000 deaths occur each year as a consequence of PUD. In India, peptic ulcer is more prevalent in Jammu and Kashmir,

followed by Southern India. North India comes next, and East and North East have comparatively lower prevalence^[4]. PUD is common in India, the Indian pharmaceutical industry have 6.2 billion rupees drugs share of antacids and antiulcer drugs and occupy 4.3% of the market share^[5]. India is known as the "Emporium of Medicinal plants" due to availability of several thousands of medicinal plants in the different bioclimatic zones^[6]. The gastric ulcer therapy faces a major drawback in modern days due to the unpredictable side effects of the long-term uses of commercially available drugs and affects 5% of the global population. Medicinal plants continue to provide valuable therapeutic agents, both in modern medicine and in traditional systems of medicine. Attention is being focused on the investigation of efficacy of plant based drugs used in the traditional medicine because they are economy, have a little side effects and according to W.H.O, about 80% of the world population rely mainly on herbal remedies^[7]. The uses of traditional medicines are widely spread and plants represent a large source of natural chemicals that might serve as leads for the development of the novel drugs^[8]. Scientists have devised different ways of alienating the problem and one of the easy and cheapest options is herbal medicines. Herbs have been in use since long time to treat various diseases^[9]. The herbal medicine is becoming popular due to

toxicity and side effects of allopathic medicines. Although a number of anti-ulcer drugs are available, all these drugs have side effects and limitations^[10]. Medicinal plants play an important role in the development of potent therapeutic agents. There are over 1.5 million practitioners of traditional medicinal system using medicinal plants in preventive, promotional and curative applications^[11]. Medicinal plants have attracted the attention of not only professionals from various systems of medicine, but also the scientific communities belonging to different disciplines, plants are promising source of herbal formulation^[12]. Herbs constitute as a main and better resource in the treatment of various ailments especially in chronic conditions like Peptic ulcer. Drug treatment of peptic ulcers is targeted at either counteracting aggressive factors (acid, pepsin, active oxidants, platelet aggravating factor "PAF", leukotrienes, endothelins, bile or exogenous factors including NSAIDs) or stimulating the mucosal defenses like mucus, bicarbonate, normal blood flow, prostaglandins (PG), nitric oxide^[13]. The first drug effective against gastric ulcer was carbenoxolone, discovered as a result of research on a commonly used indigenous plant, *Glycyrrhiza glabra*, called 'Adhimadhuram' in Siddha medicine^[14]. Studies on cabbage lead to the development of Gefarnate^[15]. In Siddha medicine, several herbs have been used to treat gastro intestinal disorders like peptic ulcer, ulcerative colitis, hemorrhoids, Anal fistula, etc.

PEPTIC ULCER DISEASE (PUD):

Peptic Ulcer Disease (PUD), synonymously called 'Gunmam' in Siddha system^[16]. There are 8 types of gunmam explained in the textbook. The Peptic ulcer disease (PUD) is a disruption in the mucosal layer of the stomach or duodenum^[17]. Peptic ulcers are believed to develop because of increased acid and pepsin secretion, a reduced mucosal defense mechanism, or a combination of these two abnormalities. Environmental factors such as use of non-steroidal and steroidal anti-inflammatory drugs, smoking, and emotional stress may play a role in the pathogenesis of ulcer disease. The exact mechanisms whereby these factors cause ulcers is unknown, although it is likely that non-steroidal drugs cause ulcers by reducing mucosal defense mechanisms whereas emotional stress may lead to ulceration by increasing acid secretion and/or decreasing mucosal defense mechanisms. Genetic factors may be important in the pathogenesis of ulcers^[18].

Causes and Risk Factors^[19]

- Drinking too much alcohol
- Regular use of [aspirin](#), [ibuprofen](#), [naproxen](#), or other NSAIDs.
- Smoking cigarettes or chewing tobacco
- Being very ill, such as being on a breathing machine
- Having radiation treatments

- Infection of the stomach by bacteria called *Helicobacter pylori* (*H.pylori*).

Symptoms^[19]

- [Abdominal pain](#) is a common symptom, but it doesn't always occur.
- Feeling of fullness -- unable to drink as much fluid
- Hunger and an empty feeling in the stomach, often 1 - 3 hours after a meal
- Mild nausea (vomiting may relieve this symptom)
- Pain or discomfort in the upper abdomen
- Upper abdominal pain that wakes you up at night

Other possible symptoms include:

- [Bloody or dark tarry stools](#)
- [Chest pain](#)
- [Fatigue](#)
- [Weight loss](#)

Complications^[19]

- Bleeding inside the body (internal bleeding)
- Gastric outlet obstruction
- Inflammation of the tissue that lines the wall of the abdomen ([peritonitis](#))
- Perforation of the stomach and intestines.

COMMONLY USED ANTI-ULCER HERBS IN SIDDHA MEDICINE

S.No	Botanical Name	Family	Name in Siddha Medicine	Part used	Ref.No
1	<i>Allium sativum</i>	Liliaceae	Vellulli	Bulb	21
2	<i>Cassia auriculata</i>	Caesalpiniaceae	Aavarai	Leaves	22
3	<i>Cinnamomum zeylanicum</i>	Lauraceae	Lavangapattai	Bark	23
4	<i>Coccinia grandis</i>	Cucurbitaceae	Kovai	Leaves	24
5	<i>Curcuma longa</i>	Zingiberaceae	Manjal	Root tuber	25
6	<i>Cynodon dactylon</i>	Poaceae	Arugambul	Whole plant	26
7	<i>Emblica officinalis</i>	Euphorbiaceae	Nellikai	Fruit	27
8	<i>Ferula asafetida</i>	Apiaceae	Perungayam	Resin	28
9	<i>Heliotropium indicum</i>	Boraginaceae	Thelkodukku	Leaves	29
10	<i>Ipomea batatas</i>	Convolvulaceae	Charukkarai-valli	Root tuber	30
11	<i>Momordi cacharantia</i>	Cucurbitaceae	Paagal	Fruit	31
12	<i>Moringa oleifera</i>	Moraginaceae	Murungai	Leaves	32
13	<i>Murraya koenigii</i>	Cucurbitaceae	Karivembu	Leaves	33
14	<i>Musa paradisiaca</i>	Musaceae	Vazhai	Whole plant	34
15	<i>Plumbago zeylanica</i>	Plumbaginaceae	VenKoduveli	Root	35
16	<i>Punica granatum</i>	Punicaceae	Mathalai	Leaves	36
17	<i>Terminalia bellerica</i>	Combretaceae	Thandrikkai	Fruit	37
18	<i>Terminalia chebula</i>	Combretaceae	Kadukkai	Fruit	38
19	<i>Trachyspermum ammi</i>	Apiaceae	Omam	Fruit	39

20	<i>Zingiber officinale</i>	Zingiberaceae	Inji/Chukku	Root tuber	40
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1. *Allium sativum*

In Siddha medicine, the herb *Allium sativum* (Tamil name-Vellulli) is used for treating ear diseases, asthma, cough, wheezing, otitis, sinusitis, ulcer, arthritis, dyspepsia, flatulence, phlegm [20]. The anti-ulcer effect of raw *Allium sativum* bulb juice on gastric and duodenal ulcers was evaluated by using different gastric ulcer methods and cysteamine induced duodenal ulcer model in rats at doses of 250 mg/kg and 500 mg/kg p.o. Both the doses of garlic juice showed gastric ulcer healing effect in acetic acid induced chronic gastric ulcers, produced gastric antisecretory effect in pylorus-ligated rats and also showed gastric cytoprotective effect in ethanol-induced and indomethacin-induced gastric ulcer. The juice also produced a significant reduction in stress induced gastric ulcers and cysteamine-induced duodenal ulcers. The low dose of the juice (250 mg/kg, p.o.) was more effective compared to the high dose (500 mg/kg, p.o.). It was concluded that juice of *Allium sativum* bulb increases healing of gastric ulcers and prevents the development of experimentally induced gastric and duodenal ulcers in rats [21].

2. *Cassia auriculata*

In Siddha medicine, the herb *Cassia auriculata* (Tamil name-Aavarai) is used for treating Diabetes, leucorrhoea, diarrhea,

dysentery, urinary tract infections, urethritis, eye diseases, menorrhagia, and spermatorrhoea [20]. The study was carried out to evaluate the anti-ulcer activity of methanolic extract of *Cassia auriculata* leaf against pyloric ligation induced gastric ulcer at dose of 300 mg/kg p.o. The extract markedly decreases the incidence of ulcers in pyloric ligated rats. The methanolic leaf extract of *Cassia auriculata* at dose of 300mg/kg showed significant reduction in the parameters of gastric volume, free and total acidity and ulcerative index, which was comparable to the standard drug famotidine (10 mg/kg). The extract showed protection index 79.4 %. It was confirmed that *Cassia auriculata* leaf methanol extract possess significant anti-ulcer activity [22].

3. *Cinnamomum zeylanicum*

In Siddha medicine, the herb *Cinnamomum zeylanicum* (Tamil name- Lavangapattai) is used for treating cough, asthma, stomach pain & discomfort, menorrhagia, snake bite, spider venom, peptic ulcer, diarrhea [20]. The study was carried out to evaluate the gastric antisecretory and antiulcer activities of *Cinnamomum zeylanicum* in rats at doses of 250 and 500 mg/kg p.o. using pylorus ligation (Shay) rat model, necrotizing agents and indomethacin-induced ulceration in rats. The cinnamon suspension showed anti ulcer activity against indomethacin. Pretreatment with cinnamon suspension

offered a dose- dependent protection against various histological indices. Cinnamon suspension significantly decreased basal gastric acid secretion and completely inhibited the ulceration in pylorus ligated Shay rats. It was clearly indicated that the *Cinnamomum zeylanicum* aqueous suspension have both antisecretory and antiulcerogenic properties[23].

4. *Coccinia grandis*

In Siddha medicine, the herb *Coccinia grandis*(Tamil name-Kovai) is used for treating stomatitis, glossitis, peptic ulcer, diabetes, asthma, phlegm, joint pain, dysuria, anorexia, eczema^[20].The methanol extract (2 g/kg), aqueous extract (2 g/kg) and powder (0.5-2 g/kg) of leaves of *Coccinia grandis* were tested for its antiulcer activity in Wistar albino rats. The powder of leaf and methanol extract showed significant decrease in ulcer, aqueous extract showed no significant decrease. In another study ethanolic, aqueous, total aqueous extracts (200 and 400 mg/kg) of leaves of *Coccinia grandis* (Linn.) were used for anti-ulcer activity in rats by using pylorus ligated ulcer model. The ethanolic extract showed comparable anti-ulcer activity as that of standard omeprazole. It was concluded that extracts of *Coccinia grandis* have significant anti-ulcer activity[24].

5. *Curcuma longa*

In Siddha medicine, the herb *Curcuma longa* (Tamil name-Manjal) is used for treating peptic ulcer, headache, rhinitis, sinusitis, leucorrhea, ulcer, edema, skin diseases, itching, jaundice, eye infection, dysuria etc^[20].The antiulcer activity of ethanolic extract of *Curcuma longa* was evaluated at the doses of 125, 250 and 500mg/kg in several ulcerated rat models. The high dose of ethanolic extract of *Curcuma longa* at dose of 500mg/kg was more effective compared to the low and medium dose (125mg/kgand250mg/kg). The efficacy in high dose of the extract(500mg/kg) appeared to be as good as Omeprazole (8mg/kg) and Misoprostol (50mg/kg) and more than that of sucralfate (500mg/kg). The ethanolic extract of *C.longa* (125,250,500mg/kg) showed significant anti-ulcer activity in the all rat models, especially in Ethanol induced gastric ulcer model (125,250,500mg/kg) and indomethacin induced gastric ulcer model(125,250,500mg/kg) than cysteamine induced duodenal ulceration (500mg/kg dose only). the effect appears to be dose dependent. It was confirmed that ethanolic extract of *Curcuma longa* possess potent anti-ulcer activity[25].

6. *Cynodon dactylon*

In Siddha medicine, the herb *Cynodon dactylon*(Tamil name-Arugambul) is used for treating eye diseases, epistaxis, skin diseases like scabies, taeniasis, drug allergy, external bleeding due to injury, leucorrhea, urinary tract infections^[20].The alcoholic

extract of *Cynodon dactylon* was evaluated for anti-ulcer activity at doses of 200,400 and 600 mg/kg b.w given p.o.for pylorus ligated and indomethacin induced gastric ulcer models in albino rats. The alcoholic extracts at doses of 400 mg/kg and 600 mg/kg showed significant ($p < 0.001$) antiulcer activity, comparable to the standard drug ranitidine. It was confirmed that alcoholic extract of *Cynodon dactylon* possess significant anti-ulcer activity in models[26].

7. *Emblica officinalis*

In Siddha medicine, the herb *Emblica officinalis*(Tamil name-Nellikai) is used for treating vomiting, giddiness, dizziness, constipation, water brash, sinusitis, ageusia, anemia, peptic ulcer, etc^[20]. The ethanol extracts of *Emblica officinalis* fruits was examined for its antisecretory and antiulcer activities employing different experimental models in rats, including pylorus ligation Shay rats, indomethacin, hypothermic restraint stress-induced gastric ulcer and necrotizing agents at the doses of 250mg/kg and 500mg/kg of BW on oral administration. The extract significantly inhibited the development of gastric lesions in all test models used. It also caused significant decrease of the pyloric-ligation induced basal gastric secretion, acidity and gastric mucosal injury and also offered protection against ethanol-induced depletion of stomach wall mucus. The extract absolutely inhibited the ethanol induced congestion, hemorrhage, edema,

necrosis, inflammatory and dysplastic changes, erosions and ulceration. It was confirmed that *Emblica officinalis* produced significant anti-ulcer and antisecretory activity[27].

8. *Ferula asafetida*

In Siddha medicine, the herb *Ferula asafetida* (Tamil name- Perungayam) is used for treating dyspepsia, peptic ulcer, flatulence, ascites, dysmenorrhea, migraine headache, asthma, snake bite, scorpion bite^[20].It was evaluated that the anti-ulcerogenic property of an aqueous suspension of *Ferulaas afetidain* different ulcer models on Wistar albino rats at doses of 250 and 500 mg/kg body weight, orally (i.p. in Shay rat model). It had significant effects in the gastric ulceration induced by basal gastric acid secretion, indomethacin and noxious chemicals. It showed significant protection in all models used. Significantly reduced the volume of basal gastric secretion, acidity and completely inhibited the ulceration and increase in the gastric wall mucus. Significant inhibition of basal gastric secretion, acidity and ulceration in pylorus ligated Shay rats' model. It also significantly prevented the gastric mucosal injury induced by indomethacin and various necrotizing agents. It was finalized that aqueous suspension of *Ferulaas afetida* produced significant anti-ulcer and gastro-protective activity[28].

9. *Heliotropium indicum*

In Siddha medicine, the herb *Heliotropium indicum* (Tamil name- Thelkodu-kku) is used for treating itching, urticaria, ulcer, dyspepsia, primary complex, eczema, leucorrhoea, arthritis, acne, asthma and scorpion bite^[20]. The ethanol extract of *H. indicum* leaves was investigated for its anti-ulcer activity against Aspirin plus pylorus ligation induced gastric ulcer in rats, HCl-Ethanol induced ulcer in mice and water immersion stress induced ulcer in rats. The extract of *H. indicum* reduced the gastric volume, free acidity, total acidity and ulcer index, showing the anti-secretory mechanism. The extract produced a significant reduction of the gastric mucosal damage. The extract showed significant ($P < 0.001$) ulcer inhibition. It was indicated that *Heliotropium indicum* leaves extract have potential anti-ulcer activity in the three models[29].

10. *Ipomoea batatas*

In Siddha medicine, the herb *Ipomoea batatas* (Tamil name- Charukkarai-valli) is used for treating excess appetite, pain in scorpion bite and used as refrigerant, nutrient & alterative^[20]. The anti-ulcer activity of the methanolic extract of tubers of *Ipomoea batatas* (TE) was studied in cold stress and aspirin-induced gastric ulcers in Wistar rats at two doses, viz., 400 and 800mg/kg. TE possessed gastro protective activity as evidenced by its significant inhibition of mean ulcers core and ulcer index in a dose dependant manner. The percentage of lesion inhibition for TE 400

and TE 800mg/kg was 23.13 % and 38.48 %. TE treatment produced a significant reduction of the ulcer index (U.I.) (TE 400mg/kg, $P < 0.05$; TE 800 and standard, $P < 0.01$). It was concluded that the methanolic extract of *Ipomoea batatas* tubers possess a potent ulcer healing effect[30].

11. *Momordica charantia*

In Siddha medicine, the herb *Momordica charantia* (Tamil name- Paagal) is used for treating cough, asthma, worm infestation, hemorrhoids, skin diseases, leucorrhoea, jaundice, dysmenorrhoea, ulcer, mercury toxicity^[20]. Anti-ulcer activity of alcoholic and aqueous extracts of fruits of *Momordica charantia* was evaluated in various animal models like Pylorus ligation, aspirin, Stress induced ulcer models in rats. The extract significantly reduced the number of ulcers, ulcer index, and gastric volume, free and total acids. The alcoholic extract exhibited relatively better antiulcer activity than the aqueous extract. Both the extracts produced a significant ($p < 0.01$) anti-ulcer activity. Fruit extracts of *M. charantia* exhibited a significant anti-arthritic and anti-ulcer activities in experimental animals rats/mice. It was established that extracts of *Momordica charantia* produced significant anti-ulcer activity[31].

12. *Moringa Oleifera*

In Siddha medicine, the herb *Moringa oleifera* (Tamil name- Murungai) is used for the treatment of dog bite, edema, swelling,

worm infestation, headache, abscess, early ejaculation of semen [20]. The anti-ulcer activity of alcoholic leaves extract of *Moringa oleifera* was tested in pylorus-ligation, ethanol, cold restraint stress, and aspirin-induced gastric ulcer in wistar albino rats at dose levels of 125, 250 & 500 mg/kg, orally and compared with ranitidine (50mg/kg). The extract showed significant ulcer protective effect as dose dependently in all models. The extract was found to decrease ulcer and acid pepsin secretion. It was assessed that alcoholic leaves extract of *Moringa oleifera* have significant anti-ulcer activity[32].

13. *Murraya koenigii*

In Siddha medicine, the herb *Murraya koenigii*(Tamil name-Karivembu) is used for treating anorexia, dyspepsia, ageusia, diarrhea, constipation, vomiting, and stomach discomfort [20]. The aqueous leaf extract of *Murraya koenigii* was evaluated for its anti-ulceractivity against NSAIDs and pylorus ligation induced gastric ulcer model in the dose of 200 & 400 mg. Both doses of *Murraya koenigii* extract showed significant reduction in ulcer index, free acidity, total acidity and gastric volume but raised PH of gastric Juice as compared to the control groups. The protection index was 47.06 % and 58.82 % at a dose of 200 and 400 mg/kg respectively compared with standard drugs omeprazole showed 70.59%. It was concluded that the aqueous extract of *Murraya koenigii* possesses anti-ulcer

activity anti secretory and cytoprotective effect[33].

14. *Musa paradisiaca*

In Siddha medicine, the herb *Musa paradisiaca* (Tamil name-Vazhai) is used for treating Ascites, urinary infections, renalstone, hematuria, anemia, leucorrhoea, menorrhagia, hemorrhoids, constipation[20]. The anti-ulcer activity of the aqueous extract of the plant *Musa paradisiaca* at doses of 250,1000mg/kg in Aspirin induced gastric ulcerated rat models. There was significant reduction in the ulcer index in dose dependent manner. $p < 0.05$ were considered significant . It was concluded that the aqueous extract of *Musa paradisiaca* leaves possesses anti-ulcer activity and it has shown dose dependent activity [34].

15. *Plumbago zeylanica*

In Siddha medicine, the herb *Plumbago zeylanica*(Tamil name-VenKoduveli) is used for treating ulcer, abscess, tumor, peptic ulcer, cancer, hemorrhoids, edema, sinusitis, ascites, penile ulcer, fever, arthritis, anemia, worm infestations [20]. The anti-ulcer activity of the aqueous extract of the roots of *Plumbago zeylanica* was carried on aspirin and indomethacin-induced acute gastric ulceration in albino Wistar rats. The anti-ulcer activity of the aqueous root extract was assessed by determining and comparing the ulcers core, ulcer index and percentage of protection. The extract at doses of 25, 50 and 100 mg/kg respectively

produced statistically significant ($P < 0.05$) dose-dependent inhibition of aspirin induced gastric mucosal damage. In the indomethacin- induced ulcer, the extract at doses of 50 and 100mg/kg respectively exhibited significant ($p < 0.05$) dose-dependent inhibition of the gastric mucosal damage. It was indicated that the aqueous extract of the roots of *Plumbago zeylanica* possesses significant anti-ulcer activity[35].

16. *Punica granatum*

In Siddha medicine, the herb *Punica granatum* (Tamil name-Mathalai) is used for treating peptic ulcer, bleeding hemorrhoids, stomach pain, diarrhea, blood vomiting, worm infestation, dysuria, leucorrhea, spermatorrhoea^[20]. The methanolic extract of *Punica granatum* leaves was evaluated for its anti-ulcer activity against diclofenac sodium induced ulcer model in rats, at the dose of 200 mg/kg. Anti-ulcer activity was evaluated by measuring the ulcer index, gastric content, and total acidity of the gastric fluid. The methanolic extract of *Punica granatum* significantly reduces the ulcer index, volume of gastric juice, total acidity of gastric fluid. It has mucoprotective activity and anti-secretory activity when compared with control group. It was cleared that the *Punica granatum* leaf extract has significant anti-ulcer activity and cytoprotective effect in animal models [36].

17. *Terminalia bellerica*

In Siddha medicine, the herb *Terminalia bellerica* (Tamil name-Thandrikkai) is used for treating penile ulcer, spider venoms, leucorrhea, constipation, ulcer and to promote eye sight^[20]. The anti-ulcer activity of ethanolic extract of *Terminalia bellerica* fruits (ETB) was investigated in pylorus ligation and ethanol induced ulcer models in wistar rats at doses of 250, 500 mg/kg orally. It produced significant inhibition of the gastric lesions induced by Pylorus ligation induced ulcer & Ethanol induced gastric ulcer. The extract showed significant ($P < 0.05$) reduction in free acidity and ulcer index. The percentage protection was similar to that of standard drug ranitidine. The extract at the doses of 250 and 500 mg/kg afforded 68 and 74% ($p < 0.05$) respectively, and ranitidine exhibited 80% protection. It was confirmed that extract of *Terminalia bellerica* have potential anti-ulcer activity in the both models[37].

18. *Terminalia chebula*

In Siddha medicine, the herb *Terminalia chebula* (Tamil name-Kadukkai) is used for treating obesity, peptic ulcer, anemia, ascites, liver diseases, hemorrhoids, fistula, stomatitis, leucoderma, constipation^[20]. The anti-ulcer activity of methanolic extract of *Terminalia chebula* fruits (METC) was investigated in pylorus ligation and ethanol induced ulcer models in wistar rats, at doses of 250, 500 mg/kg p.o. It produced significant inhibition of the gastric lesions

induced by Pylorus ligation induced ulcer & Ethanol induced gastric ulcer .The extract (250 mg/kg & 500 mg/kg) showed significant ($P<0.01$) reduction in gastric volume, free acidity and ulcer index as compared to control. This present study indicates that Terminalia chebula fruit extract have potential anti-ulcer activity in the both models. It was done that Terminalia chebula fruit extract have potential anti-ulcer activity in the both models[38].

19. *Trachyspermum ammi*

In Siddha medicine, the herb *Trachyspermum ammi*(Tamil name- Omam) is used for treating cough, dyspepsia, flatulence, asthma, peptic ulcer, stomach pain, diarrhea^[20]. The ethanolic extract of *Trachyspermum ammi* fruit was used for investigation of antiulcer activity by using pylorus ligation model and Indomethacin induced ulcer model, ethanol induced ulceration model, cold restraint stress induced ulcer model. The ethanolic extract of *Trachyspermum ammi* fruit at the dose 100mg/kg and 200mg/kg showed significant decrease in ulcer index and significant ($p<0.001$) percentage ulcer protection in all models. It was indicated that extract produced a significant decrease in the ulcer index, significant increase in percentage protection from ulcers at both the dose levels(80.65& 82.87)respectively. It was established that *Trachyspermum ammi* fruit extract shows significant

antiulcer, antisecretory and cytoprotective activity [39].

20. *Zingiber officinale*

In Siddha medicine, the herb *Zingiber officinale* (Tamil name-Inji/Chukku) is used for treating various ailments like cough, asthma phlegm, pricking pain, dyspepsia, diarrhea, anorexia, hoarseness of voice, nausea, vomiting^[20]. The Hydroalcoholic extract of *Zingiber officinale* with doses of 100, 350, 700 mg/kg, were administered orally (p.o.) to assess the anti-ulcer activity among cysteamine induced duodenal ulcerated male wistar rats. Larger doses of extract given p.o. (350 and 700mg/kg) were effective to reduce both the ulcer area and index but the lowest dose of extract (100mg/kg) was not effective. But the efficacy was not dose- dependent for the dose greater than 350mg/kg. It was concluded that hydroalcoholic extract of *Zingiber officinale* is able to prevent cysteamine induced duodenal ulceration[40].

CONCLUSION

Siddha system of medicine has rich collection of herbs for the treatment of various acute and chronic ailments. Peptic ulcer stands as one of the most important health problem worldwide due to changes in the life style and food habits. The herbs in Siddha system award proven to be useful for the management of arthritis .The herbs, in this review are largely used by Siddha practitioners and society of southern

regions of India as home remedies. From this review it is proved that there are several Siddha herbs which wield anti-ulcer activity at a particular dose. By this review, it can be concluded that many herbs have potent anti-ulcer activity and Gastro-protective effect with better results.

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