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Review Article

## EFFICIENT ROLE OF HERBS USED IN ULCER THERAPY

Domathoti Harika\*, Kavuri Subhashini, Nuthakki Suresh and Chandu Babu Rao

Priyadarshini Institute of Pharmaceutical Education and Research, 5th Mile, Pulladigunta, Guntur -522017. Andhra Pradesh, India.

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Article History	Abstract
Received: 05-02-2024 Revised: 08-03-2024 Accepted: 30-03-2024	<p>Peptic ulcers, commonly referred to as PUDs or peptic ulcer disease, are very painful ulcers that typically occur in an acidic portion of the gastrointestinal tract. Either increased aggression or decreased mucosal resistance might upset the natural equilibrium, leading to ulceration. It could be brought on by stress, erratic eating patterns, frequent drug use, and other factors. Peptic ulcers develop when there is a breakdown in the mucosal barrier along with acidity and peptic activity in the stomach liquid. Mucosal resistance to damage is significantly disrupted by two major factors: <i>Helicobacter pylori</i> (<i>H. pylori</i>) infection and nonsteroidal anti-inflammatory medications (NSAIDs). However, in comparison to traditional remedies, these pharmaceuticals are more costly and probably have more negative effects. Pain relief, ulcer healing, and delaying the recurrence of the ulcer are the optimal goals of peptic ulcer disease treatment. The traditional, ethnobotanical, and ethnopharmaceutical uses of Indian herbal plants are unique. A few plants that may be utilised to treat or prevent peptic ulcers have been the subject of informational attempts in this review. Pain relief, ulcer healing, and recurrence prevention are the main objectives of peptic ulcer disease treatment.</p>
<b>*Corresponding Author</b> Domathoti Harika	
<b>Keywords:</b> Peptic ulcer, <i>Helicobacter Pylori</i> , Herbs, Non-steroidal drugs.	

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### Introduction

Ulcers are open sore of the skin or mucus membrane characterized by sloughing of inflamed dead tissue. [13] Ulcers are lesions on the surface of the skin, or a mucous membrane characterised by a superficial loss of tissue, ulcers are most common on the skin of the lower extremities and in tract, although they may be encountered at almost any site. There are many types of ulcers. Such as mouth ulcer the oesophagus ulcer, peptic ulcer, and genital ulcer. peptic ulcer is seen among many people. (1) Peptic ulcer, also known as PUD or peptic ulcer disease is an ulcer [defined as mucosal erosions equal to Symptoms includes abdominal pain, classically epigastric with severity relating to mealtimes after around 3 hours of taking a meal duodenal ulcers are classically relieved by food, While gastric ulcers are exacerbated by it; bloating and abdominal fullness; water brash [a rush of saliva after an episode of regurgitation to dilute the acid in oesophagus]; nausea, and copious vomiting; loss of appetite and weight loss; hematemesis [ vomiting of blood]; this can occur due to bleeding directly from a gastric, or from damage to the oesophagus from severe/

continuing vomiting; melena [ tarry, foul-smelling faces due to oxidized iron]. Peptic ulcer is a group of ulcerative disorders that occur in the areas of the upper gastrointestinal tract that are exposed to acid pepsin secretions. The most common causes of peptic ulcer are *Helicobacter Pylori* infection and NSAID use. It can affect one or all years of the stomach or duodenum. The two most common types of peptic ulcer are gastric ulcer and duodenal ulcer. [47] Different names are given to ulcers depending on where they are located. Duodenal ulcers are in the duodenal. The refers to the site of ulceration. A person may have both gastric and duodenal ulcers at the same time. Gastric ulcers are located in the stomach, characterized by pain; ulcers are common in older age group. Eating may increase pain rather than relieve pain. Duodenal ulcer is 2-4 times more prevalent the same time. Then gastric ulcers occur in the stomach,

#### 2. Characterization:

Characterized by pain and are common in older age group. Peptic ulcer disease [gastric or duodenal] has been a major menace to world populations for more than a century. It has caused significant morbidity and

substantia mortality generally pain occurs when the stomach is empty and relieves after eating. A duodenal ulcer is more common in younger individuals and predominately affects males. In the duodenum, ulcers may appear on both the anterior and posterior walls (2).

3. Types of ulcers: An ulcer is a type of wound. These wounds have crater-like appearance and can develop outside or inside the body. ulcers develop when tissue injury which has a variety of causes, Ulcers are five types, these are Atrial ulcer, Venous ulcer, Mouth ulcer, Genital ulcer, Peptic ulcers in human beings.

3.1 Atrial ulcer (These are also known as ischemic ulcers. They are skin ulcers that develop due to circulation issue. when there's not enough blood flow, damage can result and lead to the formation of a wound called an atrial ulcer.(3)

Symptoms; open sores that are black, red, or yellow. Sores that are not blood.

3.2 Venous ulcer: Venous ulcers also injure the skin, and they're very common.

Like arterial venous ulcers also affects the skin, and they're very common. They develop on the lower legs and are sometimes called stasis.

Symptoms

- Dark purple or red skin
- Itching
- Swelling

3.3 Mouth ulcers: Canker sores are a common type of ulcer that forms inside the mouth. Most of the time, canker sores aren't anything to worry about, but some conditions can make you more prone to developing them.[16]

Symptoms

- ☒ Pain that worsens when eating certain foods especially those high in acid
- ☒ Trouble chewing without pain.

3.4 Genital ulcer: Genital ulcers or sores develop in the area around the penis, vagina, anus, or nearby skin.

Symptoms

- Because the skin in this area is sensitive, genital ulcers can be painful
- The all may also sleep fluid

3.5 Peptic ulcer: A peptic ulcer is an ulcer that forms inside your body, specifically in your stomach or duodenum (the first part of the small intestine).(4)

Symptoms

- A dull burning or growing pain in the abdomen.
- Bloating

Lack of appetite 4. Etiology of peptic ulcer:

The pathophysiology of peptic ulcer disease involves an imbalance between offensive (acid, pepsin, and *Helicobacter pylori*) and defensive factors (mucin, prostaglandin, bicarbonate, nitric oxide, and growth factors). (7)

4.1 *Helicobacter pylori*:

A major causative factor (60% of gastric and up to 90% of

duodenal ulcers) is chronic inflammation due to *Helicobacter pylori* that colonizes the antral mucosa. *Helicobacter pylori* (*H. pylori*) is a major etiologic factor that has a significant influence on susceptibility to peptic ulcer disorder. Thus, the bacterium can cause a chronic active upset stomach [type B gastritis], resulting in a defect in the regulation of gastrin production by that part of the stomach, and gastrin secretion can either be decreased [most cases] resulting in hypo or hydrogen chloride or increased. Gastrin stimulates the production of gastric acid by parietal cells and, in *H. pylori* colonization responses that increase stomach upset the increase in acid can contribute to the erosion. The Gram - negative bacterium *Helicobacter pylori* remain present between the mucous layer and the gastric epithelium and is strategically designed to live within the aggressive environment of the stomach. Initially, *Helicobacter pylori* reside in the antrum but over time migrates toward the more proximal segments of the stomach. (6) Then accordingly it is reasonable that the main aim of clinicians in treating peptic ulcer is eradication of *Helicobacter pylori* from the gastric lumen. *Helicobacter pylori* is present under the mucus layer of the stomach. so its eradication is difficult. Before the bacterium had been detected in the stomach, it was accepted as true the stomach ulcers; occurred when gastric mucosa was damaged from excess acid secretion, so management had focused on diminution or neutralization of the mentioned acid. (5)

4.2 NSAIDs:

Another major cause is the use of NSAIDs. The gastric mucosa protects itself from gastric acid with a layer of mucus, the secretion of which is stimulated by certain prostaglandins. NSAIDs block the function of cyclooxygenase 1 (COX 1), which is essential to produce these prostaglandins. COX-2 selective immunosuppressants preferentially inhibit COX-2, which is less essential in gastric mucosa, and roughly halve the risk of NSAID related gastric ulceration. As the prevalence of *Helicobacter pylori* caused ulceration declines in the western world due to increased medical treatment, a greater proportion of ulcers will be due to increasing NSAID use among individuals with pain syndromes as well as the growth of aging populations that develop arthritis.

5. Risk factors:

5.1 Stress: Researchers also continue to look at stress as a possible cause or at least complication, in the development of ulcers. There is debate as to whether psychological stress can influence the development of peptic ulcers.(8)

5.2 Smoking: show that cigarette smoking can increase a person's chance of getting an ulcer. smoking also slows the healing of existing ulcers and to ulcer recurrence.

5.3 Caffeine: Beverages and foods that contain caffeine can stimulate acid secretion in the stomach. This can aggravate an existing ulcer, but the stimulation of

5.4 stomach acid can't be attributed solely to caffeine.

5.5 Alcohol: While a link has not been found between alcohol consumption and peptic ulcers, ulcers are more common in people who have cirrhosis of the liver, a disease often linked to heavy alcohol consumption.

5.6 Genetic factor: People with blood group appear to be prone to develop peptic ulcer than those with other blood develop.

6. Complications:

- Internal bleeding; Bleeding can occur as slow blood loss that leads to anaemia or as severe blood loss that may require hospitalization or a blood transfusion. Severe blood loss may cause black or bloody vomit or black or bloody stools.
- A hole (perforation) in your stomach wall; Peptic ulcers can eat a hole through (perforate) the wall of your stomach or small intestine, putting you at risk of serious infection of your abdominal cavity (peritonitis).
- Gastric cancer; Studies have shown that people infected with *H. pylori* have an increased risk of gastric cancer.

7. Prevalence of peptic ulcer:

Peptic ulcer is one of the world's major gastrointestinal disorders and affecting 10 percentage of the world population. About 19 out of 20 peptic ulcers are duodenal. It is estimated that 15000 deaths are duodenal.(9) It is estimated that 15000 deaths occur each year because of peptic ulcer. The annual incidence estimates if peptic ulcer haemorrhage and perforation were 19.4-57 and 3.8-14 per 100,000 individuals, respectively. The average 7- day recurrence of haemorrhage was 13.9 percentage and the average long-term recurrence of perforation was 12.2(20). According to the latest WHO data published in 2017 peptic ulcer disease deaths in India reached 57,658 or 0.66 of total deaths. The age adjusted death rate

is 5.79 per 100,000 of populations ranks India 53 in the world. In the Indian Pharmaceutical industry, antacids and antiulcer drugs share 6.2 billion rupees and occupy 4.3 of the market.(10)

In this modern era also 75-80 of the world populations still use herbal medicine mainly in developing countries, for primary health care because of better cultural acceptability with the human body, and less side effects.

8. Prevention:

For prevention you will want to consume foods that increase digestive function bitter greens as a salad and warming spices such as turmeric and garlic can be helpful, if there is systematic inflammation and heat, then focusing on eliminating and draining heat systemically will be a strong focus. Cooling foods, berries, and healthy fats should be emphasized while heating foods such as alcohol and excessive hot peppers should be eliminated.(11)

Present study was conducted to review medicinal herbs considered as gastro protective and healing agents on ulcers in ayurvedic resources and beside that to gather evidence for their effectiveness and mechanisms in modern investigation. The medicinal plants used to treat peptic ulcer are listed in the succeeding text together with their possible mechanisms and active phytochemical constituents.

9. Types of herbs:

9.1 Demulcent herbs; Help to coat and soothe the irritated mucous membranes. These can provide symptomatic relief quickly.

9.2 Astringent herbs: Help to tighten and tone the mucous membrane to help the wound they can also limit any infection.

9.3 Anti-microbial herbs: Can address infection of the wound. In the case of a peptic ulcer went to helicobacter herbs that are specific to *Helicobacter pylori*. Such as goldenseal or garlic.

9.4 Vulnerary herbs: Helps to heal wounds.

9.5 Bitter herbs: Help to stimulate digestive secretions [often a lack of digestive secretion is the underlining cause of the ulcer].

10. Plants used for peptic ulcer:

There are many herbs, nutrients, and plant products that have been found to play a role in protecting or helping to heal stomach and peptic ulcers. A variety of botanical products have been reported to possess antiulcer activity, but the documented literature has focused primarily on pharmacological action in experimental animals. Except for eugenic compounds (i.e. aloe, liquorice and chilly), limited clinical data are available to support the use of herbs as gastro-protective agents and thus, the data on efficacy and safety are limited. Despite this, there are many botanical products with potential therapeutic applications because of their high efficacy and low toxicity. Finally, it should be noted that substances such as Flavonoids, aloe gel, and many others, that possess antiulcer activity are of particular therapeutic importance as most of the immunosuppressant drugs used in modern medicine are ulcerogenic. Active principles of antiulcer activity are Flavonoids, terpenes, and tannins.(12)

## 11. Plant profiles

Botanical name	family	Part used in peptic ulcer	extract	Mechanism of action
1.Acacia arabica	Mimosaceae	Bark and gum resin obtained from the tree	Ethanoliceextract	1.cytoprotective effects 2.antiinflammatory activity
2.Allium sativum	Liliaceae	Garlic bulb	Aqueousextract	1. antioxidant 2. anti-inflammatory 3.calciummodulatory action
3.Aloevera	Liliaceae	Chenopodiaceae	Ethanoliceextract	1. anti-inflammatoryproperties 2. wound healing 3. antimicrobial effect 4.cytoprotective effects
4.Beta vulgarise	Chenopodiaceae	Whole plant can be used for various health purpose	Ethanol extract	1.Antioxidant activity 2.anti inflammatory 3.cytoprotective properties
5.Carica papaya	Caricaca	Unripe fruit, seed	Hydroalcoholic extract	1.anti secretory 2cytoprotective
6.Eruca sativa	Brassicaceae	Leaves,seeds	Ethanol extract	1. antioxidant 2. regulation of acid secretion 3. antioxidant
7.Mangifera indica	Anacardiaceous	seed	Ethanolice extraction	1.cytoprotective effects 2. antioxidant 3.anti-inflammatory
8.Oryza sativa	pocacea	Rice grains	Solvent extraction	1. antioxidant 2. anti-inflammatory 3.cytoprotective
9.Withania somniferous	Solanaceae	root	Alcohol extraction	1.anti-inflammatory 2.cytoprotective 3. antioxidant activity
10.Annona squamosa	Annonacin	leaves	Water extraction	1.anti-inflammatory 2.cytoprotective 3. antioxidant activity

12. Ac

13. acia arabica

Synonym : Acacia, Cassie, gum ,Arabic tree Family: Mimosaceae Chemical constituents: Arabic acid combined with Calhoun, potassium magnesium. It contains large quantity of tannin pods contain 22.44%tannins.

Uses: It is used as demulcent intravenously in haemolysis: Suspending agents, emulsifying agent for fixed oil; volatile oil liquid paraffin and binding agent in the preparation in the preparation of lozenges.

Anti-ulcer activity:

*In Ayurvedic.* As gargle it is useful as wash in haemorrhagic ulcer and wounds. Bruised tender leaves formed into a poultice and applied to ulcers act as stimulant and astringent.

Bruised tender leaves formed into a poultice and applied to ulcer act as stimulant and astringent. Active constituents are phenolic compounds, tannins and flavonoids are considered.(13)

14. Allium sativum

Synonym:garlic, wild onion Family: Liliaceae Chemical constituents:chemical constituents in the plant area an acrid volatile oil which is the active principle, Strach mucilage albumen and sugar. Seeds yield aromatic oil. The juice, more particularly its oil constituents, is rich in organically bound sulphur, iodine, and salicylic acid combinations, apart from important nutrient and complementary substances containing vitamin.(14)

Uses:

- It was concluded that juice of *Allium sativum* Linn.
- Bulb increases healing of gastric ulcers and prevents the development of experimentally induced gastric and duodenal ulcers

Anti-ulcer activity:

*In Ayurvedic.* Mustard or coconut oil in which garlic has been fried is an excellent application for maggots infesting ulcers, ulcerated surfaces, and wounds. Garlic juice mixed with 3 or 4 parts of ordinary or distilled water have been used as a lotion for washing wounds and foul ulcers.(15)

*In Recent Studies.* The extract of *A. sativum* bulb juice was administered at the doses of 250 and 500 mg/kg orally in rats, against cysteamine induced gastric ulcer. The extract significantly increases healing of gastric ulcer and prevents the development of experimentally induced gastric and duodenal ulcer<sup>8</sup>

#### 15. Aloe vera

Synonyms: aloe gel." It is locally called "kattalai" which is found all over India.Family: Liliaceae

Chemical constituents; Chemical constituents in this plant are aloin, Isobarbaloin, and emodin.(16)

Uses: It is widely known for its antibacterial and skin-healing properties.

- Interestingly, aloe vera may also be an effective remedy against stomach ulcers
- In one study, aloe vera consumption significantly reduced the amount of stomach acid produced in rats suffering from ulcers

Anti-ulcer activity:

*In Ayurvedic.* Leaves are being used successfully in America in the local treatment of chronic ulcers. First the pain diminishes and after a few weeks the ulcers heal.

*In Recent Studies.* *Aloe Vera* powder was mixed with gum acacia; the solution was orally in rats at dose administered of 200 mg/kg against indomethacin induced gastric ulcer. The extract showed significant antiulcer activity comparable to control.[11]

#### 16. Beta vulgaris

Synonyms: Beetroot, Chard, European sugar beet, red garden beet, Harvard beet.

Family: Amaranthaceae Chemical constants: components such as minerals, amino acids, flavonoid, betaxanthin, and betacyanin.

Uses; That red beetroot beta Lains reduced gastric mucus and ulcer index (UI) while protecting against the macroscopic haemorrhagic damage that ethanol induced in the gastric mucosa.

Anti-ulcer activity

*In Ayurvedic.* A decoction of the root with a little vinegar added is excellent for all kinds of ulcers and running sores red beetroot beta Lains reduced gastric mucus and ulcer index (UI) while protecting against the macroscopic haemorrhagic damage that ethanol induced in the gastric mucosa. Inhibition of gastric acid secretion, reinforcement

of gastric mucosal barrier, and free radical scavenging activity.(17)

#### 17. Carica papaya

Synonyms: Arica Cariacica peltata, Carica posoposa

Chemical constituents: Chemical in this plant is Papain, chymopapain, pectin, Carpo side, caprine, carotenoids, and antheraxanthins tannins saponins are considered.

Uses: Papaya is used in the preparation of antacids, ulcer treatment and to prevent constipation. The unripe papaya extracts have shown cytoprotective and antimotility properties, suggesting the effectiveness of unripe papaya as an anti-ulcer fruit

Anti-ulcer activity

*In Folk Medicine.* It is largely used in tropical folk medicines. The ripe fruit is edible and unripe can be eaten cooked for indolent ulcer. The unripe fruit can be cooked as parts of salads, jellies, and stews while the ripe fruits are usually eaten raw without the skin or seed. Intake of the unripe fruit of the plant has been linked with an antiulcer activity.(18)

*In Recent Studies.* The aqueous seed extract of *C. papaya* was administered at the doses of 50 and 100 mg/kg orally, in rats against ethanol induced gastric ulcer.

#### 18. Eruca Sativa

Synonyms: Rocket salad, roquette, rugula Family: Brassicaceae

Chemical constituents: The seeds contain approximately 45% erucic acid and about 9% gadoleic acid. Although the flavonoids contained in arugula (*Eruca sativa*) include kaempferols, isorhamnetin, rhamnocitrine, quercetin, and their glycoside.

Antiulcer activity: Rocket extract significantly attenuated gastric ulceration induced by necrotizing agents (80% ethanol, 0.2 mol|NaOH, 25% NaCl), indomethacin and hypothermic restraint stress.

#### 18. Mangifera Indica

Synonyms: Mango, Aam

Family: Anacardiaceae

Chemical constituents: Mangifera indica (Anacardiaceae) is commonly known as "mango tree." It is locally called "Mangai." It is cultivated throughout India. Chemical constituents in this plant are alkaloids, sterols, saponins, tannins, and flavonoids. The major amino acids

include lysine, leucine, cysteine, valine, arginine, phenylalanine, and methionine (19)

locally called "Mangai." It is cultivated throughout India. Chemical constituents in this plant are alkaloids, sterols, saponins, tannins, and flavonoids. The major amino acids include lysine, leucine, cysteine, valine, arginine, phenylalanine, and methionine (20)

Uses: various parts of plant used to treat diarrhoea, dysentery, anaemia, asthma, bronchitis, cough, hypertension, insomnia, rheumatism, toothache, leucorrhoea, haemorrhage and piles Antiulcer activity : In ayurvedic leaf extracts were dissolved in rice bran oil and given orally for ulcer. Traditionally the plant reported to have anti-ulcer activity. In Recent Studies. The flower

decoction was administered in the doses of 250, 500, and 1000 mg/kg orally, in rats with gastric lesions in dose-dependent manner. Thus, the extract significantly reduced the gastric juice volume and gastric acid. Mangifera is one of the natural xanthone, which was extracted from mango tree.

#### 19. *Oryza sativa*

Synonyms: *Oryza denudate*, *Oryza elongate*, *Oryza farmosana*, *mamas Oryza sativa*

Family; [Gramineae [posaceae] is commonly known as rice paddy. It grows throughout India.

Chemical constituents; This is the first report of the isolation of four constituents n-hexacoral palmitate. n-hexacosanyl oleate, n-nonacosanyl limoleiate and stigmasterol from rice straw of *Oryza sativa*.

Uses: Mucosal Protection: Rice contains compounds that can help protect the mucosal lining of the stomach and intestines. may possess anti-inflammatory properties.

Provides Sustained Energy: Rice provides carbohydrates that can supply sustained energy without stimulating excess gastric acid production.

Anti-ulcer activity:

In Ayurvedic: Where there is an irritable or inflammatory state of the stomach, rice gruel or conjure water, as it is commonly called, (Decoction 1 in 40) or thicker liquid made by boiling the rice powder in water, with a pinch of salt and a squeeze of lemon, makes a good drink and without the lime-juice and salt in gastric ulcer. Schnabel in American Journal of Medical.

Science reports good results from the use of rice-water mixture in the treatment of gastric and duodenal ulcers.[37]

In Recent Studies. The extract of *O. sativa* bran (rice bran oil) was administered at the dose of 1 mL/day for 4 days against swimming stress induced and pylorus ligation induced ulcer in rats. The extract showed significant reduction in the basal gastric acid secretion. [44]

Efficient role of Herbs used in Ulcer Therapy 20. *Withania somniferous*

Synonyms: *asana*, *ashwagandha*, *ashwagandha*. Family: Solanaceae or nightshade

Chemical constituents: The principal withanolides extracted from *W. somniferous* in India were withanolides D and withaferin A which exhibited antitumor and cytotoxic properties. In

addition to alkaloids, the plant also consisted of steroids, saponins, phenolics, flavonoids, Phyto phenols, and glycosides.

Uses: The folk healers used the plant to treat several diseases such as fever, cancer, asthma, diabetes, ulcer, hepatitis, eyesores, arthritis, heart problems, and haemorrhoids.

Anti-ulcer activity: *Withania somniferous*, commonly known as *Ashwagandha*, has been studied for its potential anti-ulcer activity. Research suggests that it may help protect the gastric mucosa against ulcer formation by increasing mucin secretion, reducing gastric acid

secretion, enhancing antioxidant defense's, and exerting anti-inflammatory effects. Studies have shown promising results in animal models, but more research is needed to fully understand its effectiveness and safety for treating ulcers in humans.

21. *Annona squamosa*: Synonyms: custard apple, *Annona glabra*

chemical constituents: *Annona squamosa*, commonly known as sugar apple or custard apple, contains various chemical constituent, inclusion alkaloids, flavonoids, acetogenesis phenolic compound, triterpene, essential oils.

Anti-ulcer activity: Anti-ulcer activity of aqueous extracts of *Annona squamosa* seed extract was studied in rats by pyloric ligation method. The extract at dose of 100,200mg/kg produced Antiulcer activity of aqueous extracts of *Annona squamosa* seed extract was studied in Rats by pyloric ligation method. The results indicate that the alcoholic extract significantly decreases the volume of gastric acid secretion, PH, free acidity, total acidity and ulcer index with respect to control.[31]

22. The natural herbs which are used in treatment in ulcer therapy

22.1. Cabbage: Cabbage is a best remedy for a stomach ulcer, being a lactic acid food; cabbage helps to produce secretion of amino acid that stimulates blood flow to the stomach lining. This in turn helps strengthen the stomach lining and heal the ulcer. Plug cabbage contains a good amount of vitamin-C. Which has been found to be particularly beneficial for patient with *Helicobacter pylori* infection. Also experiments indicate that fresh carrot juice contains an anti-peptic ulcer factor (vitamin).

Method of uses: Cut one half of a raw head of cabbage and two carrots into small pieces and put them in a blender to extract the juice. Drink one half of this juice before each meal and at bedtime. Repeat daily for a few weeks. Be sure to use fresh juice each time.

22.2. Bananas; for stomach ulcer treatment both ripe and unripe bananas are very effective.

There are certain antibacterial compounds in banana that inhibit the growth of ulcer causing *Helicobacter pylori* Banana also protects the system by wiping out the acidity of gastric juice. Cabbage is a best remedy for a stomach ulcer, being a lactic acid food; cabbage helps to produce secretion of amino acid that stimulates blood flow to the stomach lining.

Method of analysis: If you do not eat banana, you can make banana milk shakes. Alternatively, peel two or three bananas and cut them and to thin slices. Put the slices in the dried banana pieces in the sun until they become dried. Grind the dried banana pieces into a fine powder. Mix together two-tab teaspoon of honey. Take this mixture three times a day for about a week.

22.3. Coconut: Coconut is very good for people, suffering from stomach ulcer because of its antibacterial qualities. It kills the bacteria that cause ulcer. More ever, coconut milk

and coconut water have antiulcer properties

Method of use: Drink few cups of coconut fresh milk tender coconut water daily. Also eat the Kernel of the tender coconut follow this treatment for at least one week to get positive result. Alternatively take one tablespoon of coconut oil in the morning and another at night for one week. As coconut oil is mainly composed of medium chain fatty acid, it can be easily digested.[40]

22.4. Fenugreek: Fenugreek is known for its power full healing properties and health benefits.

You can use it to treat stomach ulcer also. Being rich in a mucilaginous compound, fenugreek protects the stomach lining by coating it like mucus, there by facilitating the process of healing. Method of use: Boil one teaspoon of fenugreek seeds in two cups of water. Strain and drink it after adding a little honey to it

22. 5. Cayenne pepper: Surprisingly, cayenne pepper is another very effective remedy for treating stomach ulcer According to a review published in food science and nutrition. The compound capsaicin present in cayenne pepper inhibit the secretion of stomach-ache boots the production of alkali, and stimulate mucosal secretion and gastric mucosal blood flow, thereby preventing and healing ulcers. Method of use: Mix one-eight teaspoon of cayenne pepper in a glass of worm water drink it twice a day for the 1st two to three days.

22.6. Honey; Raw honey has potent healing properties that help a lot in the treatment of stomach ulcer. An enzyme called Glucose oxidase in honey produces hydrogen peroxide. Method of use: Take two tablespoons of raw honey daily early in the morning on an empty stomach. It will help clean the bowl strengthen the stomach lining and also treat the stomach ulcer.[6]

22.7. Garlic:Garlic helps in treatment of stomach ulcer. The antibacterial and antimicrobial properties of garlic can keep levels of the Helicobacter pylori bacterium in check, which contribute to the development of stomach ulcer. Method of use: Simply take 2-3crushed garlic followed by a glass of water during the day. Do this on a daily basis to ease inflammation in the stomach and prevent stomach ulcer.[46]

22.8. Wood apple: Leaves of wood apple, also known as Beal, is also very useful in the treatment of stomach ulcer. The tannins present in the leaves help protect the stomach agents damage from treatment of stomach acid. Jui's secreted from wood apple fruit also help to reduce pain and inflammation due to its mucilage content.

Method of use: Soak two to three wood apple leaves in one cup of water in a copper vessel overnight. The next morning strain the mixture and drink it on an empty stomach. Follow this treatment daily for few weeks.

23. Conclusion:

The current investigation focused on using medicinal herbs to treat gastric ulcers. While research has been done on some of them and they are solely used traditionally, others have already been reported to be anti-ulcer drugs. Given the growing acceptance of

alternative medicine, research is required to substantiate therapeutic claims and guarantee that the plants used in contemporary herbal medicines are valued for their therapeutic properties. These plants' long history of use has demonstrated that safety is not an issue for them.

#### Author contributions

All authors are contributed equally.

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#### Declaration of Competing Interest

The authors have no conflicts of interest to declare.

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