

## Herbal Remedies Used for the Treatment of Peptic Ulcer

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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, h<sub>2</sub> 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. The ideal aims of treatment of Peptic Ulcer disease should be to relieve pain, heal the ulcers and delay ulcer recurrence. In this review attempts have been made to know about some common medicinal plants which are being used in Ayurveda or modern science for the treatment or prevention of Peptic Ulcer and also some natural and easy ways in which available herbs can be used in treatment of ulcers.

**Keywords:** Helicobacter pylori, Herbal remedies, Peptic Ulcer, Antiulcer activity, gastrointestinal disease.

### Introduction

The most common cause of stomach ulcers is a bacterium called helicobacter pylori. Similarly, excessive use of pain medicines such as aspirin and nonsteroidal anti-inflammatory drugs such as ibuprofen, naproxen, and others can cause ulcers. A Peptic Ulcer is a lesion that destroys the gastrointestinal mucous membrane [1]. Ulcers are given different names depending on where they are discovered (gastric ulcers are located in the lining of the stomach, duodenal ulcers are located in the duodenal). In clinical practice, we frequently notice a deficiency of digestive enzymes as the fundamental cause of ulcers. [2] A lack of enzymes can create an imbalanced environment in which h. Pylori can thrive and infect the mucous membrane. The pathophysiology of Peptic Ulcer disease involves an imbalance between offensive (acid, pepsin, helicobacter pylori) and defensive (mucin, prostaglandin), bicarbonate, nitric oxide, and growth factors. Spicy foods and stress were first assumed to be the causes of Peptic Ulcers; however, they were shown to be just aggravating factors, with bacterial infection being the underlying cause (helicobacter pylori). [3] Helicobacter pylori, a gram-negative bacterium found between the gastric epithelium and the mucous layer, is designed to thrive in the stomach's harsh environment. [4]

## Epidemiology

In the general population, the lifetime prevalence of Peptic Ulcer disease is estimated to be approximately 51 percent, with an annual incidence of 1%–3%. Epidemiological studies have revealed a sharp decrease in the disease's incidence, rates of hospitalisation, and mortality over the last 20–30 years, the prevalence and incidence of Peptic Ulcer disease are now likely to be lower than these estimates worldwide, particularly in high-income countries. These decreasing numbers might be the consequence of new treatments being released, or they could be the result of a cohort trend that isn't totally explained by known factors (eg, h pylori infection and nsaid treatment). Many gastrointestinal ailments have peaks and troughs in occurrence, implying that Peptic Ulcer disease may have a birth-cohort tendency. Peptic Ulcer disease-related mortality peaked in the late nineteenth century and then began to fall. The death rate from Peptic Ulcer disease peaked in the late nineteenth century and then fell in the twentieth. The general trend corresponds to a decrease in the prevalence of h pylori infection in the population, with a birth-cohort effect visible in countries with a low prevalence of the virus.[5]

### Sign and symptoms

- Mealtimes are intimately associated with abdominal discomfort, particularly epigastric pain. When you have a duodenal ulcer, the pain often begins three hours after you eat.
- Abrasive water causes bloating and a sense of fullness in the belly (rush of saliva after an episode of regurgitation to dilute the acid in esophagus - although this is more associated with gastroesophageal reflux disease)[6]
- Nausea accompanied by a lot of vomiting
- Hematemesis (blood vomiting) can occur as a result of bleeding from a stomach ulcer or damage to the esophagus as a result of severe/continuous vomiting.
- Melena (faces with a tarry, disagreeable odor caused by oxidized iron from hemoglobin);
- A stomach or duodenal perforation caused by an ulcer can result in immediate peritonitis, intense stabbing pain, and the need for emergency surgery.

### Causes of Peptic Ulcer

#### 1) Helicobacter pylori

Robin warren and Barry j. Marshall, two Australian scientists, discovered helicobacter pylori as a cause of ulcers in 1982. They observed that the majority of stomach ulcers and gastritis were caused by colonization with this bacterium rather than stress or spicy meals. H. Pylori is a spiral-shaped gram-negative bacterium that thrives in the acidic environment of the stomach. It can injure stomach and duodenal tissue, causing inflammation and ulcers, and is discovered in the stomach along with acid secretion. H. Pylori is assumed to be transmitted from person to person via the mouth. Observations of H. Pylori in saliva and dental plaque support the idea that the mouth is a reservoir for H. Pylori and a likely source of stomach infection. Stomach cancer is the most prevalent cause of ulcers.

#### 2. Acid and pepsin

Ulcer formation is considered to be encouraged by strong digestive fluids. The stomach may protect itself against these fluids in a variety of ways. These are produced as a lubricant that coats and protects stomach tissues, comparable to mucus. They produce bicarbonate, which neutralizes and degrades digestive fluids into less harmful compounds.

#### 3. NSAIDS

The stomach mucosa defends itself against gastric acid by secreting mucus in response to certain prostaglandins. NSAIDS work by inhibiting the enzyme cyclooxygenase1, which is necessary for prostaglandin formation. NSAIDS can make the stomach more vulnerable

to the harmful effects of acid and pepsin by interfering with its ability to produce mucus and bicarbonate.

#### **4. Smoking**

Tobacco usage results in atherosclerosis and vascular spasms, which leads to vascular insufficiency and ulcer development owing to ischemia. Increased stimulation of enter chromaffin-like cells and g cells increases the quantity of histamine and gastrin released, increasing the acidity of gastric juice. Nicotine in cigarettes can boost parasympathetic nerve activity to the GIT by acting on nicotinic receptors at synapses– increased stimulation to enter chromaffin like cells and g cells increases the quantity of histamine and gastrin produced, increasing the acidity of gastric juice.

#### **5. Caffeine**

Beverages and foods that contain caffeine can stimulate acid secretion in the stomach. This aggravates an existing ulcer, but the stimulation of stomach acid cannot be attributed solely to caffeine.

#### **6. Alcohol**

Heavy consumption of alcohol causes liver cirrhosis. Ulcers are found in people with liver cirrhosis.

#### **7. Stress**

Although emotional stress does not cause ulcers, persons who are under it typically experience increased discomfort in ulcers that are already there. Afr. J. Plant sci. 506 physical stress increases the likelihood of developing ulcers, particularly in the stomach. Physical stress, such as that experienced by patients suffering from severe burns or after extensive surgery, is an example of physical stress that can result in ulcers.[7]

### **Pathogenesis of Peptic Ulcer**

Helicobacter pylori is one of the most common causes of Peptic Ulcer disease. Throughout childhood, the organism is acquired in an unsanitary and crowded environment. H. Pylori causes more severe epithelial cell degeneration and destruction in the antrum. Despite the fact that hypo secretion has been connected to the formation of gastric ulcers, 10–15 percent of people infected with h. Pylori had increased gastric secretion due to hyper gastrinemia and decreased antral somatostatin levels. This increases histamine secretion, which in turn increases acid or pepsin secretion. Gastric ulcers are associated with hypochlorhydria and mucosal atrophy. NSAIDS cause mitochondrial oxidative phosphorylation to become uncoupled via altering mucus phospholipids. Co-administration of exogenous prostaglandins and cyclooxygenase-2 (cox-2) reduces mucosal damage. When exposed to acidic gastric juice, NSAIDS are protonated and pass through lipid membranes to reach epithelial cells (Ph 7.4), where they ionize and release h<sup>+</sup>. Because NSAIDS are unable to cross the lipid barrier, they become toxic.[8]

#### **Complication associated with PUD**

- 1) Gastrointestinal bleeding: Abrupt large bleeding which is life threatening can occur when the ulcer erodes one of the blood vessels.
- 2) Penetration: Harem the ulcer continues into the adjacent organs such as liver and pancreas.
- 3) Scarring and swelling: Scarring and swelling due to ulcers causes narrowing in the duodenum and gastric outlet obstruction, which causes severe vomiting
- 4) Pyloric stenosis
- 5) Zollinger-ellison syndrome: It is a rare syndrome which consists of a triad of non-beta islet cell tumors of the pancreas that contain and release gastrin, gastric acid hyper secretion and severe ulcer disease. Extra pancreatic gastrinomas are also common and may be found in the duodenal wall.

## Prevention of PUD

- Consume a variety of beta carotene-rich vegetables, vitamin c-rich fruits, and zinc-rich meals such whole grains and seafood (oysters). Carrots, kale, red and green peppers, citrus fruits, apricots, and kiwi fruit are some of the vegetables and fruits that can help repair Peptic Ulcers and protect the gut wall from further damage.
- One of the healthy ingredients contained in these meals is carotene, which the body converts to vitamins a and c. Zinc-rich whole grains and seafood can also help in the healing process.
- Essential fatty acids (found in fish oils and seed oils) may help to prevent ulcers by increasing the generation of prostaglandin.
- Salt, soy sauce, spicy foods, caffeine in coffee, tea, cola drinks, and alcohol should all be avoided.
- Large meals should be avoided since they might cause the body to produce too much acid.

## Safety measure to prevent Peptic Ulcer

### a) Taking meal on time

It is crucial for ulcer patients to eat all of their meals on time and to refrain from snacking at odd hours of the day. Stomach acid is produced in reaction to food in order to digest it. Eating on time educates the body to release the proper amount of digestive juice at the proper moment. Consuming food at inconvenient times, such as between meals, produces a rise in stomach acid production. As a result, ulcer patients should keep track of their meal time's and try to avoid urges.

### B) Strictly avoid caffeine and alcohol

Caffeine is a popular stimulant present in a variety of meals. Excessive consumption of this compound also causes acid reflux and heartburn. Stomach ulcers are caused by an excess of acidic digestive secretions, which harms the stomach lining.

### C) Avoid hot and spices food

Spicy food does not cause ulcers, but it does aggravate them. Strong spices, such as red chilies, curry powder, mustard, and black pepper, should be avoided. Hot, spicy meals can trigger acid reflux and indigestion, which can be excruciatingly unpleasant for people who have stomach ulcers. Despite ongoing treatment and medications, the condition has the potential to worsen. As a consequence, when cooking meals, it's preferable to limit the use of strong spices.

### D) Reduce salt intake

There's evidence that persons with an h. Pylori infection who eat a lot of salt are more likely to have stomach cancer. To add taste, try adding seaweed instead of salt. Canned soup, tortilla chips, potato/corn chips, salted nuts, salted meats (e.g., bacon), blue cheese, and cornflakes are all high in sodium. Soy sauce, pickled vegetables, some preserved or canned vegetables, packaged and processed foods, and preprepared meals can all contain a lot of salt.

### D) Avoid chewing gum

The process of chewing food is known as mastication in scientific language. This process stimulates the production of gastric juices for the digestion of food as it passes down the alimentary canal. Chewing gum produces the same effect by leading to the production of stomach acid. However, since there is no food to digest, the acid damages the walls of the stomach. Therefore, the act of chewing gum can lead to the formation of ulcers and make

the already existing condition worse. The patients of ulcer must avoid chewing gum, especially on an empty stomach when there is no food at all for digestion.

#### **E) Avoid fatty food**

It is very important to maintain the overall health of the digestive system to avoid further complications in the case of stomach ulcer. Food items which stimulate the overproduction of digestive juice should be avoided. At the top of the list are fatty foods. In addition, food with a high content of simple sugars should also be avoided. Therefore, ulcer patients have to give up their love for junk food. Stay away from fried snacks, sugary delights, and fatty meals at all costs.<sup>1</sup>

#### **F) Alleviate stress**

Stress may not be a cause of the disease, but it has been linked to increased discomfort and pain. Individuals who face mental stress and excessive physical exertion in their daily life experience a slower healing time. Due to this reason, ulcer patients must find a way for reducing their level of stress. Practicing yoga, indulging in a good book, or spending quality time with family are just a few of the ways through which one can alleviate mental stress.

### **Clinical presentation and Diagnosis**

Because the symptoms of Peptic Ulcer disease are non-specific, they have a low predictive value. Patients with duodenal ulcers frequently experience hunger or nighttime abdominal pain. Postprandial abdominal pain, nausea, vomiting, and weight loss are common symptoms of stomach ulcers. Untreated Peptic Ulcer disease patients frequently experience relapsed symptoms as a result of spontaneous healing and relapse while the underlying cause (e.g., h. Pylori infection or NSAIDs use) persists. In the elderly, Peptic Ulcer disease is usually asymptomatic or has only mild symptoms.

Bleeding, perforation, and obstruction of the stomach outlet are the most common complications of Peptic Ulcer disease. Almost half of people experience bleeding without any warning symptoms, which manifests as melena or hematemesis. Admissions to hospitals for Peptic Ulcer bleeding have consistently declined worldwide, but the case mortality rate has remained stable at 51%. 8,9 a sudden onset of acute discomfort in the upper abdomen is the most common symptom of perforation. Depending on age and comorbidities, mortality rates could reach 20%.[9]

Endoscopy is the gold standard for diagnosing Peptic Ulcer disease. Aside from ruling out malignancy, detecting h. Pylori infection with histology or fast urease testing is critical to the subsequent treatment strategy. Because h. Pylori is the cause of most types of Peptic Ulcer disease, a test-and-treat strategy utilizing a non-invasive test (e.g., urea breath and stool antigen tests) to rule out infection has been advocated in patients younger than 50 years (depending on geographical area) who present with non-investigated dyspepsia and no alarming symptoms in geographical areas where gastric cancer is uncommon and h. Pylori infection is in elderly patients, upper gastrointestinal endoscopy is the preferred test to rule out or confirm the condition.

### **Medicinal plants as potent anti-ulcer agents**

Traditional Indian medical systems make extensive use of medicinal herbs. In drug development, phytochemicals derived from medicinal plants are used as lead molecules. Traditional medical systems, modern medications, nutraceuticals, food supplements, folk medicines, pharmaceutical intermediates, bioactive principles, and lead compounds in synthetic drugs all rely on medicinal plants as a source of novel drugs. According to the WHO, more than 80% of the world's population relies on plants to meet their primary health

care needs. India has a vital interest in the conservation and sustainable use of its biodiversity resources as one of the world's 12 mega diversity countries. Plant extracts are one of the most appealing sources of new medications, and they have been shown to be effective in the treatment of gastrointestinal ulcers. Anti-ulcer drugs have been discovered in nearly 240 medicinal plants and 21 plant-based compounds so far.. As a result, there is an urgent need to develop an alternative medicine for the treatment of illness that has few side effects on the patient. Traditional medications and herbal therapies, which have a low risk of side effects, are the solution.[10]

### **The natural herbs used in natural treatment of ulcers**

#### **1 demulcent herbs:**

Assist in the coating of irritated mucous membranes and their calming. These can provide symptomatic relief quickly.

#### **2 astringent herbs:**

They can also help scare and tone the mucous membrane, which will aid in wound healing.

#### **3 antimicrobial herb:**

It has the potential to be used to treat a wound infection. In the case of a Peptic Ulcer, we want to use helicobacter herbs that are specific to H. Pylori, such as goldenseal or garlic.[11]

4. **Vulnerary herb:** Assist in the healing of wounds.

5. **Bitter herbs:** Assist in the stimulation of digestive secretions (often a lack of digestive secretion is the underlining cause of the ulcer).[12]

### **Herbal remedies (traditional medicines)**

For thousands of years, Homo sapiens have relied on traditional medicine. Man began to learn from and rely on nature in his daily activities. Accidental experiments or unintentional discoveries gradually established a fundamental understanding (in other words, a conventional system of medicine).[13] According to a tablet, humans practiced conventional medicine for the first time around 2600 b.c. The tablet mentions oils from *cedrus species* (cedar), *cupressus sempervirens* (cypress), *glycyrrhiza glabra* (licorice), *commiphora species* (myrrh), and *papaver somniferum* (poppy juice).[9] Regardless of how far allopathic medicine or chemotherapy have come, the possibility of adverse effects or side effects changing cannot be ruled out. As a result, there is a need to develop an alternative therapy for disease cure that has a negligible negative impact on the patient. The solution is to use traditional medicines and herbal remedies, which have a low incidence of side effects. Many herbs, nutrients, and plant products have been discovered to play a role in protecting or healing stomach and Peptic Ulcers. There are few human trials available, but many have shown promising results in animal or in vitro studies. A wide range of botanical products have been reported to have antiulcer activity, but the documented literature has primarily focused on pharmacological action in experimental animals. Except for a few phytogetic compounds (aloe, liquorice, and chilly), there is a paucity of clinical data to support the use of herbs as gastro-protective agents; thus, data on efficacy and safety are lacking. Finally, antiulcer compounds such as flavonoids, aescin, aloe gel, and many others have a high therapeutic value because the majority of anti-inflammatory medications used in modern medicine are ulcerogenic. Antiulcer ingredients include flavonoids, terpenoids, and tannins.[14]

### **Nutritional care for Peptic Ulcer**

Patients with peptic ulcer should have a normal calorie distribution, with carbohydrate values ranging from 50% to 60%, protein values ranging from 10% to 15%, and lipids ranging from 25% to 30%, and a total energy value sufficient to maintain or regain

nutritional status. To normalize nutritional status, calorie distribution should be adjusted based on the patient's needs, with macronutrients of up to 1.2 g/kg/weight/day suggested in the acute stage of peptic ulcer (5<sup>th</sup> – 8<sup>th</sup> week) and up to 1.5 g/kg/weight/day suggested in the recovery stage of PUD.[15]

In addition to protein, micronutrients such as zinc, which is required to maintain immune system function, respond to oxidative stress, and heal wounds, can aid in the healing process. Selenium may aid in the prevention and healing of infections. Furthermore, vitamin a can be taken as a supplement, but there is little evidence to support this practice because very high doses do not cure and excessive intake is hazardous. Milk is no longer recommended due to its buffering effect and significant effect on stomach acid secretion.[16]

### Inhibition of acid production

Gastric ulcers can be treated by reducing acid production. Many herbal medications with anti-gastric ulcer action reduce gastric acid secretion. For example, taking a three-day course of oral *Ocimum sanctum* extract reduced total stomach acidity by more than half. Likewise, 400 mg/kg of oral *Solanum nigrum* fruits extract reduced stomach acid concentrations to levels comparable to omeprazole (10 mg/kg). Herbal medicine may reduce acid production by one of two mechanisms:

- Suppression of H<sup>+</sup> and K<sup>+</sup> atpase activity, as seen in human stomach ulcers
- Stimulation of prostaglandin E<sub>2</sub> production.

### Some herbs and their anti-ulcer activity:-

- 1) *Myrtus communis* (myrtaceae): "Myrtle" Is the common name for *myrtus communis* (myrtaceae). It is grown in different places of India (in various slopes). Ripe berries, which include an essential volatile oil (myrtle oil), resin, tannin, citric acid, malic acid, and sugar, are chemical ingredients in the plant. In Ayurveda medicine, it has antiulcer properties. The powdered leaves can be used to treat wounds and ulcers.
- 2) *Acacia arabica*: *Acacia arabica* (family mimosaceae) is found in arid and sandy areas across india. It is also known as "Babul tree" And "Karuvelum" In the locality. Gum containing arabic acid, as well as calcium, potassium, and magnesium, are chemical components. It has a moisture content of 14% and ash content of 3-4%. Tannin is abundant in bark, and tannin pods contain 22.44 percent tannin. Bruised tender leaves made into a poultice and applied on ulcers have stimulating and astringent properties. Phenolic chemicals, tannins, and flavonoids are considered active components.
- 3) *Aegle marmelos*: *Aegle marmelos* which is commonly known as a "ball tree" Belonging to the family rutaceae is the plant that chiefly grows on throughout India. Chemical constituents are flavonoid, tannins and saponins. Antiulcer activity:- Ulcers are induced by aspirin plus pylorous ligated gastric ulceration in rats and aqueous extract of leaves is to be administrated orally for 21 days, daily dose of 1 mg/kg.
- 4) *Aloevera*: *Aloevera* is a member of the liliaceae family and is commonly referred to as "Aloe gel." It's called as "Kettalai" In the local language and may be found all throughout India. This plant's chemical components include aloin, isobarbalin, and ematin. Anti-ulcer activity: To treat an indomethacin-induced stomach ulcer, aloevera powder was mixed with gumaccacia and administered orally to rats at a dose of 200 mg/kg. Active ingredients include barbalin and isobarbalin.[17]
- 5) *Allium sativum*: *Allium sativum*, a member of the liliaceae family, is often referred to as "Garlic" And is known locally as "Vellupundu." It is grown all throughout india. The active ingredient, acid volatile oil, is a chemical component present in this plant. Garlic juice, mixed with 3–4 parts plain or distilled water, has been used to clean wounds and toul ulcers. Active components include volatile oil, allin, and allicin.
- 6) *Ficus religiosa*: *Ficus religiosa* (urticaceae) is commonly known as "sacred fig". It is locally called "arasha-maram". Chemical constituents in this plant are bark

containing tannin, caoutchous and wax. Antiulcer activity:- Bark is useful in ulcers in infusion or decoction with a little honey. Active constituents are bioactive compounds like flavonoids, saponins and tannins are considered.

- 7) *Mimosa Pudica*: Beetroot" Is another name for *beta vulgaris* (chenopodiaceae). Sugar beet is a mediterranean seacoast native that has become popular in europe and america. There are two types of white: White and red. Anti-ulcer activity:-a decoction of the root with a little vinegar added is good for ulcers and all types of running sores.
- 8) *Annona squamosa*: *Annona squamosa* (annonaceae) is commonly known as "custard apple ". It is cultivated in gardens all over India which is locally called as "sitapalam". Chemical constituent in this plant are alkaloids, flavonoid, saponins and tannins. Antiulcer activity. Leaves made in to a paste without adding water are applied to unhealthy ulcers. The aqueous leaf extract protected against pylorus ligation and ethanol induced gastric ulcer in rats. As active constituents tannic acid is considered.[18]
- 9) *Beta vulgaris*: *Beta vulgaris* is sometimes known as "Beetroot" (chenopodiaceae). Sugar beet is a mediterranean seacoast native that is now widely utilized in Europe and America white comes in two varieties: White and red. Anti-ulcer activities: A decoction of the root with a little vinegar added is excellent for ulcers and all forms of running sores
- 10) *Galega purpurea*: *Galega purpurea* is also known as "Purple tephrosia" (papilionaceae). In the area, it's called as "Kolluk – kay – welai." It may be found all across India, although it is most common in the south. It grows on rocky soils that are too hard to root in. Chemical components include yield gum, a combination of albumen and colouring ingredients, resin, chlorophyll, and glucoside rutin. Antiulcer activity—powdered root coupled with honey is used to cure ulcers.
- 11) *Hibiscus rosa sinensis*: *Hibiscus rosa sinensis* is also known as the changing rose (malvaceae). Chembaruthi is the name given to it by the locals. This plant's chemical components include flavonoids, anthocyanins, quercitine, cynidine, kaempferol, and hydrolytic acid. In pylorus-ligated rats, alcoholic preparations of h. Rosa sinensis roots revealed significant antiulcer action at a dosage of 250 mg/kg. As an antiulcerogenic agent, this extract shows potential.
- 12) *Papaya (carica papaya)*: *Carica papaya linn* is most often known as papaya. It belongs to the caricaceae family and is well-known for its medicinal properties. Antiulcer qualities are found in the fruit. The fruits have been demonstrated to have hepatoprotective qualities and have also been used to treat paediatric burns. The seeds have been shown to have antimicrobial, anthelmintic, and antiamoebic properties. Papaya is a digestive enzyme that can aid with bloating, constipation, and chronic indigestion. Papain and chymopapain are two and gastrointestinal problems.[19]
- 13) *Azadiracta indica* (Neem): The antiulcer and cytoprotective effects of *azadiracta indica* (neem) stem bark extract were investigated in albino rats. *Azadiracta indica* significantly decreased indomethacin-induced stomach ulcers. This action was accompanied by a dose-dependent decrease in total stomach acidity. The histamine h<sub>2</sub> receptor is hypothesized to be activated by azadiracta indica. It works by reducing acid secretion and minimizing oxidative damage to the stomach mucosa. The reduction of acid secretion was confirmed by inhibiting H<sup>+</sup> and K<sup>+</sup> atpase activity. While limiting lipid peroxidation and scavenging endogenous hydroxyl radicals, the stomach mucosa was protected from oxidative injury.[20]

## Future directions

In the past, H. Pylori infection and the use of NSAIDS dominated Peptic Ulcer disease research, impacting diagnosis and treatment. Even though H. Pylori infection may be

successfully treated with current pharmacologic approaches, novel eradication monotherapies that simplify treatment regimens while increasing eradication rates are still required. We will continue to employ molecular methods to identify genetic features that predict the development of idiopathic ulcers. The identification of an h. Pylori gene that promotes the development of duodenal ulcers has led in the development of a novel marker that may be used to identify persons who are at a higher risk of developing duodenal ulcers while simultaneously being at a reduced risk of gastric atrophy and cancer. The bulk of predisposing factors, on the other hand, are host-oriented, which means they are dependent on the patient's genetic features.

## Conclusion

A Peptic Ulcer is a gastrointestinal disorder that primarily affects the inner walls of the stomach. Spicy foods, mental stress, and smoking can all contribute to the development of Peptic Ulcers by increasing stomach output and disrupting acid-base balance, pepsin level, and other factors. Infection with helicobacter pylori can also cause abdominal discomfort, pain, nausea, and other symptoms. This study concluded that the plants mentioned above are effective in preventing or treating Peptic Ulcers caused by a variety of factors such as h. Pylori, aspirin, indomethacin, alcohol, and others. This plant was discovered to have anti-ulcer efficacy in vivo and in vitro, and it can be used as an alternative source of treatment for ulcers. The current treatment for ulcers focuses on immune system strengthening and acid secretion reduction. There are numerous therapeutic plants and extracts (which contain active chemical ingredients) on the market. . Plant-based medicines are preferable to allopathic medications. It is an efficient and cost-effective method that is easily implemented.as the prevalence of Peptic Ulcer disease rises with age, it is expected that this common disease will have an even greater global impact on health-care delivery.

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