

A REVIEW ON HERBAL POTENTIAL FOR TREATMENT OF PEPTIC ULCER

Sharnagat Shubham Baban*¹, Khandre Rajeshree Asaram*²

*¹Student At Pratibhatai Pawar College Of Pharmacy Shrirampur, India.

*²Assistant Professor At Pratibhatai Pawar College Of Pharmacy Shrirampur, India.

ABSTRACT

Peptic ulcer disease is characterised by an ulcer in the gastrointestinal tract that is frequently acidic and consequently very painful, Abdominal pain, particularly severe abdominal pain after meals that lasts for around three hours, gas and bloating, nausea, violent vomiting, loss of appetite, and weight loss are a few symptoms. Numerous herbs, minerals, and plant-based substances have been demonstrated to help prevent or treat stomach and stomach ulcers. There aren't many trials in humans, but many have had promising results in animal or in vitro research. And based on the information provided by various academics, the current study attempted to gather details about various herbs used for treating stomach ulcers in various regions of the world.[1]

Keywords: Peptic ulcer, H.pylori, Herbal Treatment.

I. INTRODUCTION

The most frequent gastrointestinal condition, peptic ulcer disease (PUD), which comprises stomach and duodenal ulcers, calls for a focused therapeutic approach. The stomach and the first few inches of the duodenum are where ulcers most frequently develop. Due to some medications, such as nonsteroidal anti-inflammatory medicines (NSAIDs), gastric acid, and pepsin, the ulcer develops breaks in the continuity of the gastric or duodenal mucosa and eventually leads to lesions. ulceration, which is characterised by mucosal erosions of 0 or more.5 cm) from the gastrointestinal tract's frequently acidic and hence extremely painful region. Duodenal ulcers affect about 19 out of every 20 stomachs. Less frequently occurring are stomach ulcers, which develop in the stomach wall. The stomach mucosa is frequently exposed to things that could be bad for it, like medicines, pepsin, bile acids, dietary ingredients, and Helicobacter pylori bacteria. stomach motility, decreased stomach blood flow, increased gastric acid and pepsin secretion, suppression of prostaglandin synthesis and cell development, and other agents have all been linked to the pathophysiology of gastric ulcers. NSAID use and H. pylori infection are factors in duodenal ulcers. However, only a tiny percentage of those who have H. pylori or use NSAIDs will develop peptic ulcer disease, so when mucosal damage starts, individual susceptibility is crucial. Gastric ulcer disease is linked to functional polymorphisms in several cytokine genes. For instance, interleukin 1 beta (IL1B) polymorphisms influence mucosal interleukin 1 production and result in gastroduodenal illness linked to H. pylori. Usually, the pain comes on when the stomach is empty and goes away after eating. The anterior and posterior walls of the duodenum can potentially develop duodenal ulcers, which are quite prevalent in younger people and predominantly affect men. Market-available medications are beneficial. However, they don't offer long-lasting protection from ulcers. Recurrences of ulcers might be seen. Consequently, a herbal remedy is applied. Compared to conventional medicine, herbs provide effective protection against ulcers and have fewer side effects.[5]

➤ Common signs and symptoms include:

Depending on the disease's location and the patient's age, the signs and symptoms of peptic ulcer disease can change. It is possible to distinguish between gastric and duodenal ulcers based on when the symptoms first appear in connection to meals. Duodenal ulcers commonly cause nighttime pain. Obstacle to the gastric outflow frequently mentions a history of bloating or gas.[7]

- Epigastric abdominal pain
- Bloating
- Abdominal fullness
- Nausea and vomiting
- Weight loss/weight gain
- Hematemesis

- Melena

Diagram:

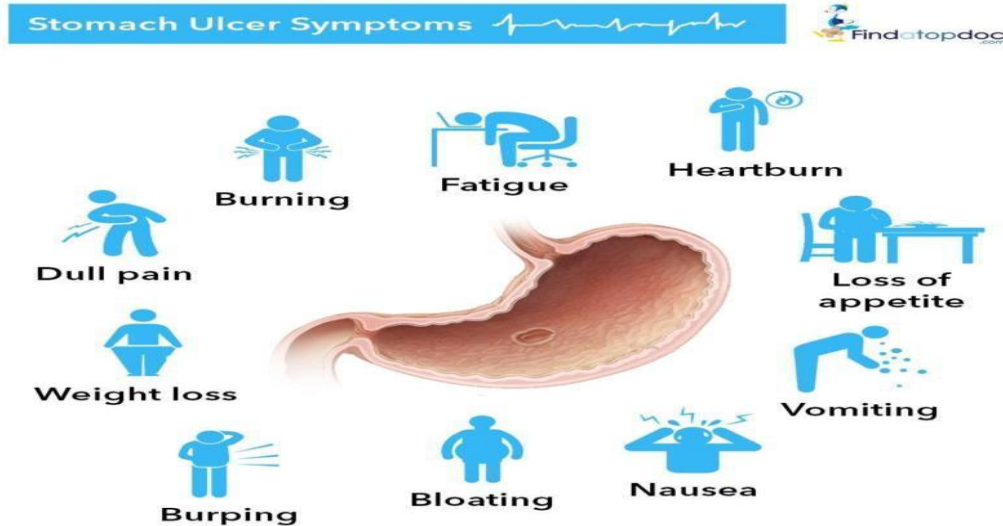


Fig 1: Symptoms of peptic ulcer

➤ **Causes of Peptic Ulcer Disease:**

Peptic ulcer disease (PUD) has various causes; however, Helicobacter pylori-associated PUD And NSAID-associated PUD account for the majority of the disease.[8]

• **Common causes:**

1. Helicobacter pylori

A gram-negative bacillus called H. pylorus is detected in the cells of the gastric epithelium. 90% of duodenal ulcers and 70% to 90% of stomach ulcers are brought on by this bacterium. People with lower socioeconomic status are more likely to develop pylori infection, and is frequently learned during childhood. Numerous virulence elements in the organism allow it to attach to and inflame the stomach mucosa. Stomach ulcers result from hypochlorhydria or achlorhydria, which is caused by this.[10]

2. NSAID-Associated Ulcer Disease and the Use of PPIs

The second most frequent cause of PUD after H. pylori infection is the use of NSAIDs. The use of COX-2 selective NSAIDs or their combination with a gastroprotective drug are just a couple of the many strategies that are available to prevent NSAID and aspirin-associated gastroduodenal ulcers and Their sequelae. The most well-liked and efficient preventive medications are PPIs.[12]

3. Medications

The aetiology of PUD has been linked to NSAIDs, corticosteroids, bisphosphonates, potassium chloride, and fluorouracil in addition to NSAIDs. Smoking also seems to be associated with duodenal ulcers, however the relationship is not a straight line. Alcohol might aggravate the lining of the stomach.[16]

• **Rare causes:**

1. Malignancy (gastric/lung cancer, lymphomas)
2. Stress (Acute illness, burns, head injury)
3. Viral infection
4. Vascular insufficiency
5. Radiation therapy [19]

➤ **Preventing peptic ulcers:**

1. Avoid tobacco products.
2. Avoid alcohol.
3. Use caution with aspirin and/or NSAIDs.
4. Don't ignore your ulcer symptoms.

5. Protect yourself from infections by washing hands regularly and consuming foods that have been cooked thoroughly.[21]

➤ **Emergence of Herbal Drugs To Treat Ulcer:**

Since ancient times, herbs have been utilised to cure a wide range of illnesses. Known as phytotherapy, the use of medicinal plants to treat a wide range of illnesses dates back to the dawn of humankind. A growing interest in alternative therapies and the usage of herbal products, particularly those made from medicinal plants, has also emerged in recent years. The key ingredients in brand-new medications are plant extracts and their crude oil, which have produced encouraging outcomes. leads to the treatment of stomach ulcers as well. Flavonoids, tannins, and terpenoids, among other active compounds in herbal remedies, have antiulcer properties. The main source of possible novel medicines is thought to be medicinal plants. Further education of doctors and patients on herbal medicine is therefore required, as well as laws to regulate the quality of herbal products, particularly for upcoming randomised trials to ascertain efficacy. Regarding the safety of numerous goods in cases of digestive and other diseases. Finally, combining modern medicine with Ayurvedic expertise may result in preferred anti-ulcer medications made from therapeutic plants that have less adverse effects.[25]

➤ **Mechanism Of Action:**

Studies in humans and animal models suggest that herbal medicines exert their beneficial effects on gastric ulcer via multiple mechanisms, including antioxidant activity, stimulation of mucosal proliferation, inhibition of acid production and secretion, increased mucus production, as well as inhibition of inflammation.

• **Antioxidant activity**

It is well known that oxidative stress and peptic ulcers are related. It is most likely because of their antioxidant characteristics that some herbal remedies are beneficial for stomach ulcers.

• **Stimulation of mucosal proliferation**

The healing of ulcers requires mucosal proliferation. Some herbal remedies that aid in ulcer healing work by promoting cell division. The elevation of epidermal growth factor and its receptor expression may be the cause of how herbal medicine stimulates cell division.

• **Inhibition of acid production**

Acid production can be reduced to treat peptic ulcers. Gastric acid secretion is decreased by many herbal medications with anti-gastric ulcer action. Inhibition of H(+)/K(+)-ATPase function, as seen in animal models of gastric ulcer, or activation of prostaglandin E2 production may be the causes of herbal medicine-induced reductions in acid production.[20]

➤ **Plant Used for Treating Peptic Ulcer:**

There are many herbs, nutrients, and plant Materials that play a role in protecting or healing abdominal ulcers. Human testing has shown Sensitive potential in animal or in vitro studies.[28]

• **Some medicinal plants used in the Treatment Of Peptic Ulcer:**

1. Papaya:

Biological Source:It is a ripe fruit of Carica Papaya.

Family:Caricaceae

Chemical constituents :

- Pectin
- Carposide
- Carpaine
- Carotenoids



Fig 2: Papaya

Uses:

- It's extract are used decreased the amount of gastric juice and stomach acidity.
- Unripe fruit can be used in salads, jellies, and stews.
- The leaves are used to make medicine.

2. Ginger :

Biological Source : Ginger consists of the dried rhizomes of the *Zingiber officinale* Roscoe.

Family: Zingiberaceae

Chemical constituents :

- Carbohydrates
- Lipids



Fig 3: Ginger

Uses:

- It's extract significantly reduced the ulcer.
- Some active components of ginger are used to treat the Peptic Ulcer.
- Ginger has been used as a pain relief. Like :- chest pain, stomach pain.
- Ginger is used as an anti-inflammatory agent, anti-cancer agent.
- Ginger is also used as a flavoring agent in foods and as a fragrance in soaps and cosmetics.

3. Banana :

Biological Source:It is a ripe fruit of *Musa Paradisiaca*.

Family:Musaceae

Chemical constituents :

- Phenolics
- Carotenoids
- Phytosterols



Fig 4: Banana

Uses :

- There are certain anti-bacterial compound in bananas that inhibit the growth of ulcer-causing H.pylori.
- Eat three bananas in a day get relief from an ulcer.
- It's used improve blood sugar levels, improve insulin sensitivity when unripe.
- You can also buy green banana powder, blend 2 tbsp of banana powder and 1 tbsp of honey. Have this mixture 3 times in a day for a week.
- Some countries, bananas used for cooking may be called "plantains", distinguishing them from dessert bananas.

4. Garlic:

Biological Source :Garlic consists of the fresh compound bulb of *Allium sativum*Linn. **Family:**Liliaceae

Chemical constituents :

- Volatile oil
- Alliin
- Allicin



Fig 5: Garlic

Uses:

- Garlic juice mixed with 3 or 4 parts of ordinary or distilled water has been used as a lotion for washing Wounds and Foul Ulcers.
- A lotion made of garlic juice and three to four parts plain or distilled water has been used to wash away nasty ulcers and lesions.

- The extract dramatically speeds up Gastric Ulcer healing and shields rats from getting experimentally produced gastric and Duodenal Ulcers.
- Garlic helps boost your body's immune system, reduce high blood pressure and reduce cholesterol levels.

5. Neem :

Biological Source :It is a leaves of

Family:Meliaceae

Chemical constituents :

- Flavonoids
- Volatile fatty acids
- Stearic acid



Fig 6: Neem

Uses:

- In Ayurveda it is used infected Ulcerations respond well to a poultice made of leaves and sesame seeds.
- In current studies in rats, Azadirachta indica leaf extract prevented pylorus ligation- and cold-stress-induced Stomach Ulcers.
- It is a used to reduce blood sugar levels, kill bacteria and prevent pregnancy.

6. Indian berry :

Biological Source:It is a dried/ripe fruit (berry) of Berberis aristata.

Family:Berberidaceae

Chemical constituents:

- Flavonoids
- Alkaloid



Fig 7: Indian berry

Uses:

- In Ayurveda it is used the root is used to make crude extracts known as rasaut (in Hindi), and the bark can be applied to skin Ulcerations when combined with honey.
- Best use of this herb is in eye related disorders.
- It is used to treat diarrhea, manage diabetes, and also give a anticancer effects.

7. Aloe vera :

Biological Source:Aloe vera is the dried juice extracted from the leaves of Aloe Barbidensis.

Family:Liliaceae

Chemical constituents :

- Aloin
- Isobarbaloin
- Emodin



Fig 8: Aloe vera

Uses :

- The extract showed significant antiulcer activity comparable to control.
- In America, leaves are successfully utilised to treat localised chronic ulcers.
- Significant antiulcer activity was seen in the extract.

8. Tamarind Tree :

Biological Source : The dried, ripe fruits of the Tamarindus indicaLinn.

Family: Caesalpiaceae

Chemical constituents:

- Tartaric acid
- Citric acid
- Acetic acids



Fig 9: Tamarind Tree

Uses :

- It is used as an anticancer, antioxidant, and antimicrobial.
- Decoction of the leaves is used as a wash for indolent ulcers and promotes healthy action.
- It is used as an anticancer, antioxidant, and antimicrobial.
- It is used to improve digestion, manage diabetes, and help in weight loss.

9. Mango :

Biological Source : It is an edible fruit of *Mangifera indica*.

Family: Anacardiaceae

Chemical constituents:

- Alkaloids
- Tannins
- Flavonoids



Fig 10: Mango Tree

Uses :

- Leaf extracts were dissolved in rice bran oil and given orally for ulcers.
- Traditionally the plant is reported to have anti-ulcer activity.
- The extract significantly reduced the gastric juice volume and gastric acidity.
- They help to treat or prevent diseases, improve intestinal flora.

10. Drum Stick:

Biological Source : It is a vegetable of *Moringa oleifera*.

Family: Moringaceae

Chemical constituents:

- Alkaloids
- Flavonoids
- Tannins



Fig 11: Drum-stick

Uses :

- The leaf tea treats Gastric Ulcers.
- The extract showed decreases in ulcer and acid pepsin secretion.
- It is help to decreasing the blood pressure and blood purification.
- Drumsticks improve bone density and improve immunity.

11. Custard Apple:

Biological Source : It is a ripe fruit *Annona squamosa*.

Family: Annonaceae

Chemical constituents:

- Alkaloids
- Flavonoids
- Tannins



Fig 12: Custard Apple

Uses :

- In Ayurveda it is used unhealthy ulcers are treated by applying a paste produced from leaves without any water.
- In current studies rats exposed to pylorus ligation and ethanol-induced Stomach Ulcers were prevented by the aqueous leaf extract.
- Prevent high blood pressure and promote good digestion.
- It is a used as a antioxidant, anticancer and anti-inflammation.[32]

II. CONCLUSION

According to this study, lowering acid production was the only effective treatment for ulcers and that acid secretion was the sole cause of their development. The major objectives of ulcer treatment today are lowering acid secretion and boosting the immune system. Ayurveda, the oldest known medical system, provides hints for finding plant compounds with therapeutic potential. Combining traditional and modern skills may result in the development of better Peptic Ulcer treatments with fewer adverse effects. These plants have been screened by in vivo and in vitro possessing anti-ulcer activity and can be used as alternative source to treat ulcer. Now treatment of ulcers mainly targets the potentiating the defensive system along with lowering of acid secretion. There are various medicinal plants and their extracts (containing active chemical constituents, e.g. tannins and flavonoids) that have significant antiulcer activity. Plants drugs are more preferable than allopathic medicines. It is an efficacious and cost effective, easily obtainable having less no side effect.[31]

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