



# A REVIEW ON HERBAL POTENTIAL FOR TREATMENT OF PEPTIC ULCER

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## Abstract:

Ulcers, particularly gastric and duodenal ulcers, have long been a significant concern in the field of gastroenterology. The understanding of their pathophysiology has evolved over the years, leading to the development of various anti-ulcer agents. This abstract provides a brief overview of the mechanisms and therapeutic prospects of anti-ulcer agents. Gastric ulcers are primarily associated with the erosion of the gastric mucosal barrier, which protects the stomach lining from the corrosive effects of gastric acid. Duodenal ulcers, on the other hand, are often linked to excessive acid production. Historically, the mainstay of ulcer treatment involved acid-suppressive medications, such as proton pump inhibitors (PPIs) and histamine receptor antagonists (H2 blockers). These drugs effectively reduced acid secretion and provided relief to patients. Recent advancements in the field have highlighted the crucial role of *Helicobacter pylori* infection in the development of ulcers. Eradication of this bacterium with antibiotics has become a key component of ulcer management, especially in cases where infection is confirmed. Additionally, mucosal protective agents like sucralfate have gained prominence for their ability to enhance mucosal defense mechanisms and promote ulcer healing. Prostaglandin analogs, such as misoprostol, are used to both reduce acid secretion and promote mucosal protection. In recent years, research has focused on novel therapeutic approaches, including the use of growth factors and stem cell-based therapies to accelerate ulcer healing. Furthermore, the identification of new targets within the inflammatory and oxidative stress pathways has opened up exciting avenues for drug development. In conclusion, the treatment landscape for ulcers has evolved significantly from merely suppressing gastric acid. It now encompasses a multifaceted approach that includes antimicrobial therapy, mucosal protection, and emerging regenerative strategies. These developments hold promise for improved management and enhanced outcomes for patients with ulcers. Please note that this abstract provides a general overview, and the specific details and advancements in the field of anti-ulcer agents may have evolved since my last knowledge update in September 2021.

## 01. Introduction

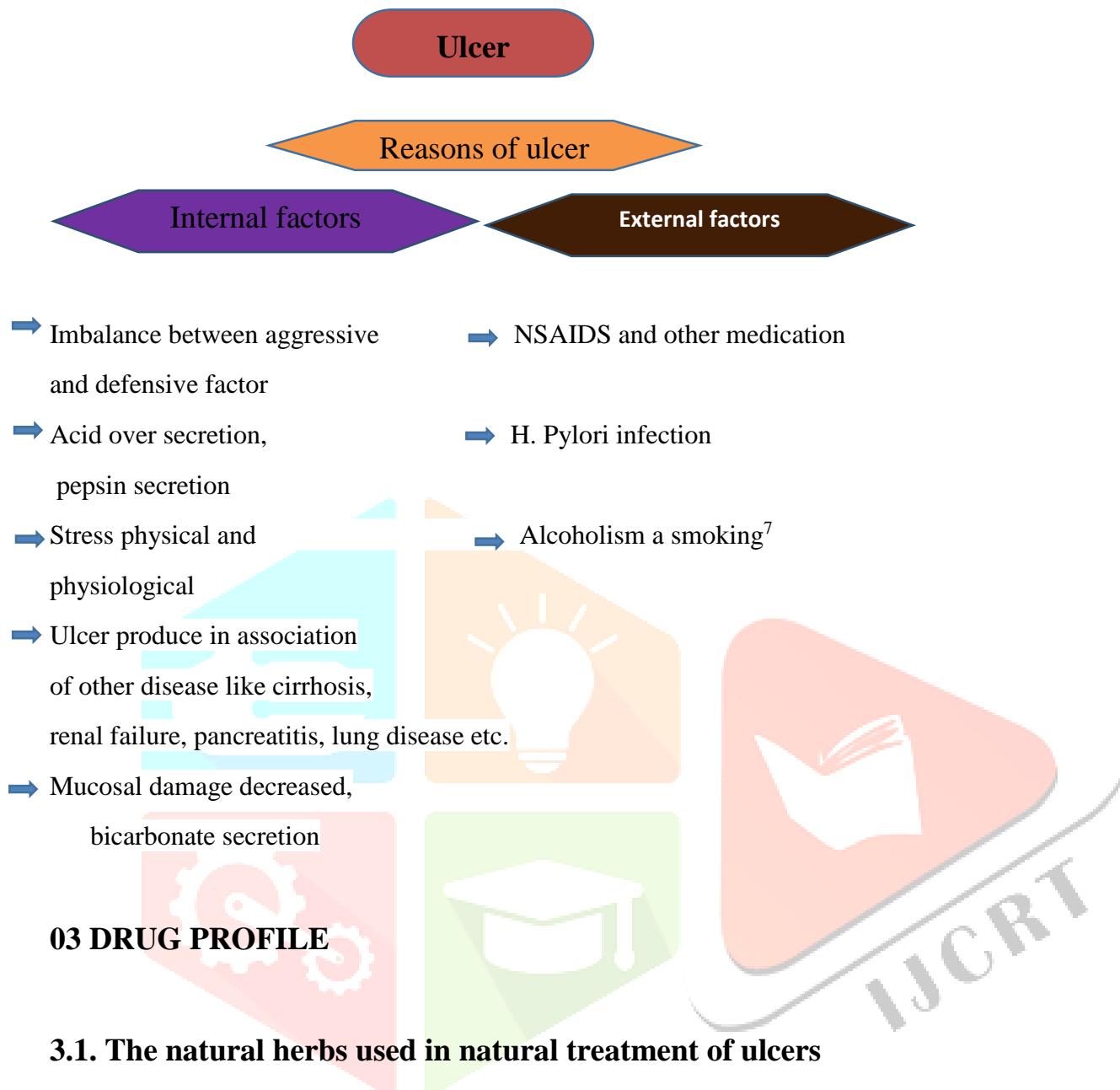
Peptic ulcer disease (PUD), which includes gastric and duodenal ulcers, is the most common gastrointestinal problem and demands a well targeted therapeutic strategy. The most common sites for ulcers are the stomach and the first few centimetres of the duodenum. Peptic ulcer causes break off in the continuity of the mucosa of stomach or duodenum as a consequence of some medications like non-steroidal anti-inflammatory drugs (NSAIDs), gastric acids and pepsin, finally causing [lesions](#). Basically, word 'peptic' is derived from Greek term 'peptics' whose meaning is related to digestion<sup>1</sup>. Gastric ulcer is the most common disorder of the upper digestive tract. The prevalence of gastric ulcer is 2.4% in the Western population and annual incidence rates range from 0.10% to 0.19%. In certain regions of Mainland China, the prevalence of gastric ulcer is as high as 6.07% in the general population, and 22.5% of patients with gastrointestinal symptoms have gastric ulcer. Higher incidence usually occurs in people who smoke, use nonsteroidal anti-inflammatory drugs (NSAIDs), or consume alcohol. The recurrence rate is as high as 60%<sup>2</sup>.

The gastric mucosa is continuously exposed to potentially injurious agents such as acid, pepsin, bile acids, food ingredients, bacterial products (*Helicobacter pylori*) and drugs. These agents have been implicated in the pathogenesis of gastric ulcer, including enhanced gastric acid pepsin secretion, inhibition of prostaglandin synthesis and cell proliferation growth, diminished gastric blood flow and gastric motility.

1. Drug treatment of peptic ulcers is targeted at either counteracting aggressive factors or stimulating the mucosal defences;
2. The goals of treating peptic ulcer disease are to relieve pain, heal the ulcer and prevent ulcer<sup>3</sup>.

Acute peptic ulcers involve tissues down to the depth of the submucosa, and the lesions may be single or Multiple. Reasons for the development of acute ulcers Include severe illness, shock, burns, severe emotional Disturbance, and postsurgical complications. Chronic Peptic ulcers penetrate through the epithelial and muscle Layers of the stomach wall. There a several symptoms of ulcer like changes in appetite, nausea, bloody or dark Stools, weight loss, indigestion, vomiting, and chest Pain. Complications of peptic ulcers include Haemorrhage, perforation, pyloric stenosis and the Development of malignant tumours. Poor digestion and Elimination, improper metabolism, mental and physical Stress, and difficult to digest food enhance the Development of ulcers. Peptic ulcer can be categorized On the basis of location and on the severity of disease. Numerous other factors are also responsible for Progression of peptic ulcers like Tumours Necrosis Factor- A (TNF  $\alpha$ ), Reactive Oxygen Species (ROS), release of Histamine, incidence of apoptosis and bile acids Secretion<sup>4</sup>. A number of drugs are available for the cure of peptic ulcers, but clinical evaluation of these drugs indicates high relapse rate, side effects and drug interactions. These complications enforces for the development of new antiulcer drugs and the search for novel molecules from the drug basket of nature, which is the herbal resources. Plants have been a valuable source of new molecules and considered as an alternative strategy in search for new drugs for numerous ailments. There are a number of plants used in traditional medicine known to possess antiulcer properties that may, after a few possible chemical modifications, provide new and improved antiulcer agents<sup>5</sup>.

Ulcers are primarily caused by an imbalance between some Endogenous aggressive and protective factors in the stomach Such as acid-pepsin secretion, integrity of the mucosal barrier, Mucus secretion, blood flow, cellular regeneration, Prostaglandins, and growth factors. Several factors are also Associated in the occurrence of peptic ulcer including stressful Lifestyle, alcohol consumption, use of steroidal and non-steroidal Anti-inflammatory drugs (NSAIDs; example, aspirin), *Helicobacter pylori* infections, smoking, lower socio-economic Status and family history Although ulcer is not a deadly disease, It can lead to more serious complications like gastrointestinal Bleeding, perforations, penetration of ulcer into adjacent organs and gastric outlet obstruction<sup>6</sup>.



### 3.1. The natural herbs used in natural treatment of ulcers

#### Demulcent herbs:

Help to coat and soothe the irritated mucous membranes. These can provide symptomatic relief quite quickly.

#### Astringent herbs:

Help to tighten and tone the mucous membrane to help the wound they can also limit any infection Antimicrobial herbs: Can address infection of the wound. In the case of a peptic ulcer, we want to helicobacter herbs that are specific to Pylori such as goldenseal or garlic. Vulnerary herb: Help to heal wounds.

#### Bitter herbs:

Help to stimulate digestive secretions (often a lack of digestive secretion is the underlining cause of the ulcer).

The following drugs are used for treatment of peptic ulcer

#### 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 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 in to small pieces and put them in a blender to extract the juice. Drink one half of this juice before each meal and at bed time. Repeat daily for a few weeks. Be sure to use fresh juice each time<sup>25</sup>.



## 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 Pylori. Banana also protects the system by wiping out the acidity of gastric juice. This helps reduce inflammation and also strengthens the stomach lining.

Method of uses:

To treat an ulcer eat at least three ripe bananas a day .If you do not eating 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 in to a fine powder. Mix together two tab teaspoon of honey. Take this mixture three times a day for about a week<sup>26</sup>.



### 3. COCONUT

Coconut is very good for people, suffering from stomach ulcer because of its anti bacterial qualities. It kills the bacteria that cause ulcer. More ever, coconut milk and coconut water have anti ulcer 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 weak to get +vet result. Alternatively take one table spoon 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<sup>27</sup>.



### 4. LIQUIORICE

Several studies suggest that licoricey works effectively for treating and preventing stomach ulcer. It helps the stomach and intestine produce more productive mucous that forms a coating over the stomach lining. This in turn eases the pain form ulcer and speeds up the healing process.

Method of use:

Mix one half tea spoon of licoricey root powder in one cup of water. Cover it and let it sit over night the next morning, add one cup of cooked broken white rice in to this infusion and eat it. Repeat daily for one week to get +vet result<sup>28</sup>.



## 5. 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 tea spoon of fenugreek seeds in two cups of water. Strain and drink it after adding a little honey to it<sup>29</sup>.



## 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, which in turn kills harmful bacteria that cause ulcer. Pius it soothes and reduces the inflammation of stomach lining. Method of use: Take two table spoons of raw honey daily early in the morning on an empty stomach. It will help cleans the bowl strengthen the stomach lining and also treat the stomach ulcer<sup>30</sup>.



## 7. GARLIC

Garlic helps in treatment of stomach ulcer. The anti-bacterial and anti-microbial 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 2-3 crushed 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<sup>31</sup>



### 3.2. Somen herbs and their anti-ulcer activity:-

#### A. *Myrtus communis*:-

*Myrtus communis* (Myrtaceae) is commonly known as “myrtle”. It is cultivated in many parts (in gradients) of India. Chemical constituents in the plant are ripe berries that contain an essential volatile oil (oil of myrtle), resin, tannin, citric acid, malic acid and sugar.

Antiulcer activity:-

In Ayurvedic. Powder of leaves is useful application in wounds and ulcers. The fruit, myrtle berry carminative and given in the form of infusion for internal ulcerations. Active constituents. Fixed oil eugenol is considered.



**B. Acacia arabica:-**

Acacia arabica (family Mimosaceae), is common all over India in dry and sandy locality. It is commonly known as “babul tree” and locally called as “karuvelum“. The chemical constituents are gum containing Arabic acid combined with calcium, potassium, magnesium. It contains 14% moisture, ash 3-4 %. Bark contains large quantity of tannin pods contain 22.44% tannin.

Antiulcer activity:-

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

**C. 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.





#### D. Aloe vera:-

Aloe vera belonging to family Liliaceae is commonly known as “aloe gel “. It is locally called “kettle” which is found all over India. Chemical constituents in this plant are aloin, isobarbalin and ematin. Antiulcer activity:- Aloe vera powder was mixed with gum acacia; the solution was administered orally in rats at dose of 200 mg/kg against indomethacin induced gastric ulcer. Active constituents are Barbalin, isobarbalin.



#### Conclusion:

This study focused on medicinal herbs for stomach ulcers. Some have been reported to be anti-inflammatory, but others have not yet been studied and are only used traditionally. It is now time to develop safe herbal medicines for humans that are non-toxic and affordable than traditional medicines, using ethnopharmacological knowledge gained from our traditional healers. Due to the increasing popularity of alternative medicine, there is a need for research that will support treatment in today's medicine and enable the evaluation of plants according to their values. Safety is not a concern for this facility, as proven by years of use. What needs further research is the development of a standard procedure for the production of herbal medicines.

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