ABSTRACT

Peptic ulcer disease, also known as PUD or peptic ulcer disease, is an ulcer (defined as a mucosal erosion of at least 0.5 cm) in an area of the gastrointestinal tract that is often acidic and therefore extremely painful. Symptoms include abdominal pain, severe pain associated with meals, about 3 hours after eating; gas and bloating; nausea and severe vomiting; loss of appetite and weight loss etc. There are many herbs, nutrients and plant products that have been shown to play a role in protecting or healing stomach and stomach ulcers. Few human studies are available, but many have shown good potential in animal or in vitro studies. And the present study aimed to collect information about different herbs used for gastric ulcer treatment in different parts of the world depending on the data provided by different researchers.

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

1. INTRODUCTION

Peptic ulcer disease (PUD), which includes gastric and duodenal ulcers, is the most common gastrointestinal problem and requires a targeted therapeutic strategy. The most common sites for ulcers are the stomach and the first few inches of the duodenum. The ulcer causes breaks in the continuity of the gastric or duodenal mucosa as a result of some drugs such as nonsteroidal anti-inflammatory drugs (NSAIDs), gastric acid and pepsin, and eventually causes lesions.[1] Disease, ulceration (defined as mucosal erosions equal to or greater than 0.5 cm) from an often acidic and therefore very painful area of the gastrointestinal tract.[2] About 19 out of 20 stomach ulcers are duodenal. Stomach ulcers, which are located in the stomach wall, are less common. The gastric mucosa is constantly exposed to potentially harmful substances such as acid, pepsin, bile acids, food ingredients, bacterial products
(Helicobacter pylori) and drugs. This Agents have been implicated in gastric ulcer pathogenesis, including increased gastric acid and pepsin secretion, inhibition of prostaglandin synthesis and cell growth, decreased gastric blood flow and gastric ulcer formation, gastric motility.[3] Duodenal ulcers include H. pylori infection and NSAID use. However, only a small proportion of people affected by H. pylori or using NSAIDs will develop peptic ulcer disease, meaning the individual susceptibility is Important when mucosal damage begins. Functional polymorphisms in different cytokine genes are associated with gastric ulcer disease. For example, interleukin 1 beta (IL1B) polymorphisms affect mucosal interleukin 1β production and cause H. pylori-associated gastroduodenal disease.[4]

The pain usually occurs when the stomach is empty and subsides after eating. Duodenal ulcer is very common in younger people and mostly affects males, it can be seen on both the anterior and posterior walls.[5] Medications available on the market are helpful. however, they do not provide lasting relief against ulcers. Ulcer recurrences can be observed. Therefore, a herbal treatment is used. Herbs offer good protection against ulcers and have fewer side effects compared to general medication.

2. 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.[6]

Common causes
- H. pylori infection
- NSAIDs
- Medications

Rare causes
- Zollinger-Ellison syndrome
- Malignancy (gastric/lung cancer, lymphomas)
- Stress (Acute illness, burns, head injury)
- Viral infection
- Vascular insufficiency
- Radiation therapy
- Crohn disease
2.1. *Helicobacter pylori* Eradication: *H. pylorus* is a gram-negative bacillus found in gastric epithelial cells. This bacterium is responsible for 90% of duodenal ulcers and 70 to 90% of gastric ulcers. Pylori infection is more common in people with lower socioeconomic status. And is often acquired in childhood. The organism has a variety of virulence factors that allow it to adhere to and inflame the gastric mucosa. This leads to hypochlorhydria or achlorhydria, which leads to stomach ulcers.

2.2. NSAID-Associated Ulcer Disease and the Use of PPIs
NSAID use is the second most common cause of PUD after *H. pylori* infection.[7][8] Many strategies are available to prevent NSAIDs and aspirin-associated gastroduodenal ulcers and their complications, such as: the use of COX-2 selective NSAIDs; or its combination with a gastroprotective agent. PPIs are the most popular and effective prophylactic agents.[9]

2.3 Medications
In addition to NSAIDs, corticosteroids, bisphosphonates, potassium chloride and fluorouracil have been implicated in the etiology of PUD. Smoking also appears to play a role in duodenal ulcers, but the correlation is not linear. Alcohol can irritate the stomach lining.

**Common signs and symptoms include**
Signs and symptoms of peptic ulcer disease can vary depending on the location of the disease and age. Gastric and duodenal ulcers can be distinguished by the timing of onset of symptoms in relation to meals. Nocturnal pain is common with duodenal ulcers. Gastric outlet obstruction commonly reports a history of gas or bloating.

- Epigastric abdominal pain
- Bloating
- Abdominal fullness
- Nausea and vomiting
- Weight loss/weight gain
- Hematemesis
- Melena
3. Emergence of Herbal Drugs To Treat Ulcer: Herbs have been used to treat all sorts of ailments since ancient times. The use of medicinal plants to cure numerous diseases is as old as mankind and is known as phytotherapy. Additionally, in recent years there has been a growing interest in alternative therapies and the use of herbal products, particularly those made from medicinal plants.\cite{10,11} Plant extracts and their crude oil are the main sources of new drugs and have shown promising results. Also leads to the treatment of gastric ulcers.\cite{12} Herbal medicines with active ingredients such as flavonoids, tannins and terpenoids show antiulcer activity.\cite{13} Medicinal plants are considered to be the largest reservoir of potential new medicines. Therefore, further education of physicians and patients on herbal therapy as well as legislation to control the quality of herbal products is needed, especially for future randomized research to determine efficacy. And safety of many products in digestive and other disorders.\cite{14} Finally, Ayurvedic knowledge and modern medicine could lead to preferred anti-ulcer drugs derived from medicinal plants with fewer side effects.\cite{15}

4. 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.
Some medicinal plants used in the Treatment Of Peptic Ulcer:

5. Plant Profiles

5.1. EMBILICA OFFICINALIS

Synonyms: Indian: Goosber,
Arab: Amlaj.
Assam: Amluki
Ayurvedic: Amalaki
Family: Euphorbiaceae

Chemical Constituents
Phenolic compounds, amino acids, tannins, alkaloids and carbohydrates are the main components of EO. The highest vitamin C content in fruit juice is (478.56 mg/100 ml) and when mixed with other fruits, the fruit enhances its nutritional profile with the vitamin C content.[16]

Uses: Antibacterial, Antifungal, Antiviral Medical studies conducted on the Amla fruit suggest that it has antiviral properties and also acts as an antibacterial and antifungal agent. Antioxidant The use of amla as an antioxidant has been studied by several authors. Experiments conducted at the Niwa Institute of Immunology in Japan have shown that amla is a powerful free radical scavenger. The aphrodisiac Amla is said to enhance Ojas and is considered one of the most powerful rejuvenating herbs in Ayurvedic medicine. It is the main ingredient in one of the famous Ayurvedic herbal formulas called Chayavanprasha, which is highly regarded as a tonic.[17]

Antiulcer Activities: A herbomineral formulation of an Ayurvedic medicine called Pepticare, composed of EO, Glycyrrhiza glabra and Tinospora cordifolia, was tested in
rats for antiulcer and antioxidant activity. Pepticare exhibits anti-ulcer activity which can be attributed to its antioxidant property.\cite{18} EO methanolic extract (EOE) has been studied against ulcers. This may be due to its effects on both offensive and defensive mucosal factors.\cite{19}

5.2. ALOE VERA

**Synonyms:** Aloe, Musabber, kumara  
**Family:** Liliaceae

**Chemical Constituents**
The ten main chemical component groups of aloe vera include: amino acids, anthraquinones, enzymes, minerals, vitamins, lignins, monosaccharides, polysaccharides, salicylic acid, saponins and sterols. It also contains vitamins B1, B2, B3, B5, B6 and B12 along with choline and calcium. Aloe vera, a plant rich in antioxidants, contains vitamins such as A, C and E as well as minerals, zinc and selenium. Anti-oxidants help boost the immune system and combat free radicals in the body.\cite{20}

**Uses**
The present mucilage tissue on the middle of leaves on this plant known as aloe gel is used for numerous medicinal purposes. Its recovery assets is because of a compound known as glucomannan, that is enriched with polysaccharides like mannose. The glucomannan influences fibroblast increase thing and stimulates the interest and proliferation of those cells. The mucilage of aloe vera now no longer handiest will increase quantity of collagen on wound site, however additionally will increase transversal connections amongst those bands in preference to converting collagen shape fastening wound recovery.\cite{21,22}
Antiulcer Activities
Aloe vera juice can be helpful in treating ulcers, heartburn, and other digestive ailments. Aloe vera extract might help reduce acid secretion. Some studies have found that aloe vera can also be used in children.[23] However, do not use aloe vera as an alternative to modern medical treatment. Using herbal remedies to combat ulcers may worsen the situation.

5.3. Zingiber officinale

Synonyms: Amomum zingiber L.
Family: Zingiberaceae

Chemical composition
It is reported that officinal essential oils, phenolic compounds, flavonoids, carbohydrates, proteins, alkaloids, glycosides, saponins, steroids, terpenoids and tannins are the main phytochemical groups. The volatile oil consists primarily of mono- and sesquiterpenes; Camphene, β-phellandrene, curcumene, cineol, geranyl acetate, terphineol, terpenes, borneol, geraniol, limonene, β-elemene, zingiberol, linalool, α-zingiberene, β-sesquiphelandrene, β-bisabolene, zingiberenol and α-farmeseno.[24,25]

Uses
Ginger is widely used in Ayurveda to cure many diseases such as indigestion, lack of taste, loss of appetite, flatulence, intestinal and biliary colic, nausea, vomiting, allergic reactions, acute and chronic cough, cold, fever and allergies. Rhinitis, sinusitis, acute and chronic bronchitis, breathing problems, pain, headache, back pain or any type of muscle contraction, toothache and swollen gums.[26,27]
Antiulcer Activities
In vitro studies of ginger methanol extract with an MIC of 25μg/mL inhibit Helicobacter pylori. Since Helicobacter pylori causes stomach ulcers, ginger has anti-ulcer properties.\[^{28}\] Ginger essential oil reduced gastric ulcers, which was confirmed by gastric histopathology. In addition, it has been found that the oxidative stress generated by ethanol is significantly reduced by ginger essential oil.\[^{29}\]

5.4. Glycyrrhiza glabra

**Synonyms**: Liquorice  
**Family**: Leguminosae

**Chemical composition**: Flavonoids such as liquiritin, rhamnoliquiriline, liquiritigenin, prenylico flavone A, glycololiquiritin apioside, 1-methoxyphaseolin, synpterocarpine, shinflavanone, licopyranocoumarin, glisoflavone, lycoarylcoumarin and coumarin GU-12 and saponins, namely glycyrrhizin (60 times sweeter than sugar cane). Also four isoprenoid-substituted phenolic components (isoangustone A, semi-lycoisoflavone B, licoryfenone and 1-methoxyficifolinol), Kanzonol R (derived from prenylated isoflavan) and various volatile components (pentanol, tetramethylpyrazine, hexanol, terpinen-4-ol, linalool A and B, geraniol and α-terpineol). Furfuryl formate, trimethylpyrazine, Furfuraldehyde, methyl ethyl ketone and maltol were isolated from the essential oil. glabra.Glycyrrhizin consists of glycyrrhetinic acid and triterpenoid aglycone linked to glucuronic acid disaccharide and can be found naturally as the calcium and potassium salts in licorice root.\[^{30,31,32}\]

**Uses**
Licorice has been reported to treat many ailments including asthma, tonsillitis, sore throat, hyperdipsia, flatulence, epilepsy, fever, sexual weakness, paralysis, cough, stomach ulcers,
heartburn, colic, swelling, rheumatism and skin conditions, heartburn, fluoride, bleeding, hemorrhagic disorders and jaundice.\textsuperscript{[33,34,35,36,37]}

**Antiulcer Activities:** It has been shown to be effective in healing ethanol-induced ulcers, reducing gastric secretion and also delivering a thick, protective liquid prostaglandin that coats the stomach lining.

5.5 *Azadirachta indica*

Azadirachta

**Synonyms:** neem, nimtree or Indian lilac,

**Family:** Meliaceae

**Chemical composition**

The main active ingredient is azadirachtin, the others are nimboline, nimbin, nimbidin, nimbidol, sodium niminate, gedunin, salanine and quercetin. The leaves contain ingredients such as nimbin, nimbanes, 6-deacetyl nimbin, nimbandiol, nimbolide, ascorbic acid, n-hexacosanol and amino acid, 7-deacetyl-7-benzoylazadiradione, 7-deacetyl-7-benzoylgedunin, 17-hydroxyazadiradione and nimbiol.\textsuperscript{[38,39]}

**Uses**

The seeds are used for skin diseases and rheumatism. The bark is useful in malarial fever. The dried fruits are used as a tonic and stomachic remedy. The young twigs are used as a toothbrush.

**Antiulcer Activities**

In Ayurveda. A poultice of leaves mixed with sesame seeds is very useful for unhealthy ulcerations.\textsuperscript{[40]} In recent studies. *Azadirachta indica* leaf extract protected against pyloric ligation and cold stress-induced gastric ulcer in rats.\textsuperscript{[41]}

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REFERENCES
2. GI Consult: Perforated Peptic Ulcer; Retrieved, 2007; 08-26.


