

## EMERGING TRENDS IN PLANT DERIVED ANTI ULCER THERAPEUTICS

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**Abstract**

Health comprises the balanced state of Doha, That, Mala and Agni. For the digestion process balanced, Jatharagni is immensely important. Both these Dramas modify and balance the state of Maharani, improve digestive concealment, facilitates peristaltic movements, etc. It is imbalance between aggressive and protective factors; several herbal drugs have been estimated for its Possible spelling mistake found. Efficacy using several ulcer converting models in laboratory creatures. This composition is only confined to the anti-ulcer efficacy of the medicinal shops. Herbal drugs could be a precious choice to treat Peptic ulcer with smaller adverse goods. The conformation of peptic ulcers depends on the presence of acid and peptic exertion in gastric juice plus breakdown in mucosal defenses. The more potent lead composites with lower side goods.

**Keywords:** Peptic ulcer, medicinal plants, Anti-ulcer properties, gastric ulcers, Gastroprotective activity, Phyllanthus urinaria, Adiantum lunulatum, Ulcer healing activity.

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**INTRODUCTION**

An ulcer is an inflammatory rupture in the mucous membrane or skin that lines the digestive track. When the natural balance is upset by increased aggression or decreased mucosal resistance, ulceration results. Infection of gastrointestinal mucosal tissue by Helicobacter pylori has also been linked in recent years to gastric ulcers. Eliminating Helicobacter pylori appears to be a cure for peptic ulcer disease, which affects about 70% of people with the example, H2 antagonists can cause impotence, headaches, skin rashes, and arrhythmias, while proton pump inhibitors can cause hyper gastronomic and atrophic gastritis without warning. The most frequent locations for peptic ulcers are the first segment of the duodenum and the lesser curvature of the stomach, which are referred to as duodenal and gastric ulcers, respectively [1]. Eliminating Helicobacter pylori appears to be a cure for peptic ulcer disease, which affects about 70% of people with the infection. Many medicinal plants are used to treat the signs and symptoms of stomach diseases Peptic ulcer also called as focus possible spelling mistake found. Has become a common disorder in the world affective major population of different countries Peptic ulcer is a break in the continuous mucosal barrier in stomach, duodenum or the digestive tract, exposing the underlying tissue to the corrosive action of pepsin and hydrochloric acid [2]. Ulceration may result due to frequent damage to

the endothelial layer or failure of restoration or healing of the mucosal layer thus compromising the integrity of the mucosa Peptic ulcer disease is represented by the disruption of the mucosal layer of the digestive tract. This term is encompassing a diverse group of conditions with ulcerations. It is among the most common gastrointestinal ailments affecting about 10-15% of the population Some of these plants are Bathing SPP., Erica sativa (Linn.) CAV. (Possible spelling mistake found.), Genera recumbent, Opium Possible spelling mistake found., Poona cilia, Diasporas SPP., Symptoms SPP., Possible spelling mistake found. SPP., Voacanga africana Stapf (Possible spelling mistake found.), Palladium Possible spelling mistake found. Blanco (Possible spelling mistake found.), Musa paradisiaca Linn. (Rutaceae), Sweetened macaroni (Linn.) Jacq. (Possible spelling mistake found.), Possible spelling mistake found. Possible spelling mistake found. Cong. (Possible spelling mistake found.) [3].

**OVERVIEW OF PEPTIC ULCER:**

One of the most dangerous gastrointestinal conditions in the world, peptic ulcer disease significantly affects morbidity. Approximately 8% of all prescriptions are for medications used to treat GIT issues. The cost of treating ulcer disease is also significantly impacted by drug resistance [4]. Additionally, acid-independent therapy is offered by sucralfate and bismuth cholinergic... Synthetic drugs that are used for the

treatment of peptic ulcer have been reported with many adverse effects, which limits its use over a long period of time. Proton pump inhibitors (PPIs) have been reported to cause minor side effects like nausea, abdominal pain, constipation, flatulence and diarrhea. It causes blood disorders and hemopoietic changes with risk of anticholinergic side effects [5]. Search for the drugs from herbal origin can be boosted to mankind as drugs from natural sources have been found to possess less side effects as compared to synthetic drugs. Thus, the current review aims at compiling data of reported possible spelling mistake found activity from medicinal.

#### 1. Common forms of peptic ulcer

##### 1.1. Duodenal ulcers (DU)

##### 1.2. Gastric ulcers (GU)

##### 1.3. Stress ulcers (SU)

##### 1.4. NSAIDs-induced ulcers

##### 1.5. Recurrent oral ulceration

#### 1.1: Duodenal ulcers (DU)

A chronic disease that affects people's quality of life and is linked to rising rates of morbidity and mortality is Peptic Ulcer Disease (PUD). According to reports, 50% of people suffer with dyspepsia, and 10% of adults will experience it at some point in their lives of peptic ulcer [6].

#### 1.2: Gastric ulcer (GC):

Gastric ulcer is a rise from continuous erosion and destruction of the stomach wall that might become perforated and progressed into peritonitis and large hemorrhage as a and prostaglandins. For thousands of years, the ancient medical system (Ayurveda) has utilized a variety of medicinal plants to treat a wide range of illnesses, including peptic ulcers, cancer, diabetes, arthritis, hepatitis, acute and chronic inflammations, neurological diseases, and more [7]. A wide variety of plants used in traditional medicine are recognized to have Possible spelling mistake found.

#### 1.3: stress ulcer (SU)

A stress ulcer is defined as ulceration in the upper GI tract due to hospitalization which can become complicated by upper gastrointestinal bleeding. These ulcers can be caused by shock, sepsis, trauma or other conditions and are found in patients with chronic illnesses. A distinction between abdominal and stress ulcers [8]. Endoscopic means of treating stress ulceration may be ineffective and operation required. It is believed that shunting blood away from the mucosa makes the mucous membrane ischemic and more susceptible to injury.

#### 1.4: Recurrent oral ulceration

Recurrent oral ulcerations are manifestations of a heterogeneous set of both general and more-or-less specific oral diseases due to numerous potential etiologies, including, but not limited to, infections, medications, autoimmune disease, ulceration, infectious ulceration, subcutaneous disease, and autoimmune/systemic disease. A diagnostic algorithm for recurrent oral ulceration is also presented.

Recurrent oral ulceration is a term used to describe small mouth ulcers that typically last a few days but come back every few weeks or months [9].

#### 1.5: NSAIDs-induced ulcers

Non-steroidal anti-inflammatory drugs (NSAIDs), beneficial for their anti-inflammatory and analgesic effects, account for 8% of prescriptions worldwide and are used most commonly in those with those conditions. over the age of 65 years. Clinically, patients present with Elena, Possible spelling mistake found. and/or hematemesis, a fall in haemoglobin and rising urea as blood is digested to protein and metabolized to urea within the liver [10]. For thousands of years, the ancient medical system (Ayurveda) has utilized a variety of medicinal plants to treat a wide range of illnesses, including peptic ulcers, cancer, diabetes, arthritis, hepatitis, acute and chronic inflammations, neurological diseases, and more.

### REPORTED ANTIULCER ACTIVITY OF PEPTIC ULCER:

#### 1 Aloe vera

Family name: Liliaceae

Common name: Aloe vera

Parts used: Leaf

Active constituent: Saponin, barbaloin, isobarbaloin

Roles in Human body: Detoxification, laxative, wound healing, skin burns care, antiulcer, cytoprotective, anti-fungal, hepatoprotective, immune stimulator, mucus secreting and anti-diabetic.

Anti-ulcer property: The plant's anti-ulcer properties have been documented in an ulcer model caused by Indomethacin. The plant's antioxidant, anti-inflammatory, mucus-secreting, cytoprotective, or healing properties are the mechanism that produces its antiulcer efficacy. The plant's pharmacological properties include wound healing, immunomodulation, antifungal, hepatoprotective, hypolipidemic effects [11].

#### 2 Glycyrrhiza glabra:

Family name: Fabaceae

Common name: Liquorice, mulathi

Parts used: Roots, rhizomes and stolon's

Active constituents: Flavonoids (Glabrol, Liquiritin), Isoflavones (Glabridin, Glabrene), (Liquocoumarin) and chalcones (isoliquiritin). Coumarines

Roles in Human body: Diuretic, antioxidant activities, laxative, sedative, anxiolytic, antimicrobial, antiviral, anti-inflammatory, analgesic, antineoplastic, anticonvulsant action and antipyretic.

Antiulcer property: Glycyrrhizic acid, a triterpenoid saponin, is the main ingredient in liquorice. It is well recognized that this class of chemicals provides ulcer prevention. The identification of *Helicobacter pylori* in 1982 significantly altered our knowledge of how ulcers occur in general [12].

#### 3 Curcuma longa

Family name: Zingiberaceae

Common name: Turmeric, Haldi

Parts used: Rhizome (brownish yellow in colour)

Active constituent: Flavonoids, curcumin, phenolic

compounds, tannins, zingiberene, borneol, cineol and sabinene.

Roles in Human body: Anti-inflammatory, wound healing, anti-oxidant, anti-fungal, anti-bacterial, anti-venom, anti protozoan, hypolipemic, hypoglycaemic, anti-coagulant, anti carcinogenic and prevention of gastric ulcer.

Antiulcer property: Studies have been conducted to assess the antiulcer properties of turmeric in the duodenum and stomach. In rats administered Indomethacin, Reserpine, pyloric ligation, and hypothermic restraint stress, ethanol extract demonstrated strong anti-ulcerogenic action. Since in majority of cases it is aggravated due to pepsin and hydrochloric acid, it is termed as peptic ulcer [13].

#### 4 Ficus religiosa

Family name: Moraceae.

Common name: Peepal, Asvatthah.

Parts used: Bark, leaves, Fruit, Seeds.

Active constituent: Saponins, tannins and flavonoids.

Roles in Human body: Anti diabetic, antiulcer, anti-amnesic, anti-microbial, anti-inflammatory, anti-convulsant, anti-asthmatic, anti-anxiety, anti-cancer and also used for menorrhagia, dysentery, diarrhoea, haemorrhoids, anti-lipid peroxidation and gastrohelcosis

Antiulcer property: Additionally, there was possible antiulcer action evident in the ethanolic extract of F. Religiosa stem bark. F. Religiosa's antiulcer properties were assessed in vivo using the pylorus ligation assay, indomethacin-induced stomach ulcers, and cold-restrained stress. Bark of the plant is used as gonorrhoea, diarrhoea, dysentery, leucorrhoea, menorrhagia, vaginal and other urogenital disorders haemorrhoids, ulcers and gastrohelcosis [14].

#### 5 Catharanthus roseus:

Family name: Apocynaceae

Common name: periwinkle, pink flowered "Rosea", and white flowers "Alba"

Parts used: Flower, leaves, fruit.

Active constituents: Vinblastin, Vincristine, Vindesine, Vindoline, Tabersonine, flavonoids, carbohydrates, vincerine, vineamine, raubasin, reserpine, catharanthine saponin.

Roles in the human body: Anti-cancer, anti-diabetic, anti-microbial, anti-oxidant, anti-helminthic, anti-ulcer, hypotensive, anti-diarrheal, wound healing, hypolipidemic, memory enhancement.

Antiulcer property: The plant's alkaloids, vincamine and vindoline, have anti-ulcer properties. The plant leaves contain an alkaloid called vincamine, which has neuroprotective and cerebrovasodilatory properties. Asia, Africa, Australia, North and South America, and Southern Europe. Renowned for its rich phytochemical composition, C. roseus contains bioactive compounds such as flavonoids, phenolics, vinblastine, and terpenoids [15].

#### 2.6 Gynura procumbens:

Family name: Asteraceae

Common name: spinach

Parts used: Leaves

Active constituents: terpenoids, flavonoids, sterol glycosides, saponins and tannins.

Roles of human body: the treatment of ailments like rashes, eruptive fever, migraines, kidney diseases, hypertension, viral skin diseases, diabetes mellitus, constipation, rheumatism and urinary tract infection.

Anti-ulcer property: They emphasized that it gave a gastro-protective effect in adult rats used in their study. Leaves of G. procumbens have shown to protect the gastric mucosa significantly against ethanol-induced injuries. The protection was found to be dose dependent, most prominent protection at a dose of 400 mg/kg as established by the reduction of ulcer zones in the gastric wall, reduction in the inhibition of edema and reduced leukocytes infiltration in the sub-mucosal layers. A few of these traditional prerogatives have been corroborated in pharmacological studies, including use as anti-inflammatory, anti-hypertensive, anti-hyperglycemic, anti-herpes virus and anti-hyperlipidemic medicines [16].

#### 2.7 Diospyros malabarica:

Family name: Ebenaceae

Common name: Gaub tree

Parts used: fruits and seeds

Active constituents: flavonoids, carbohydrates, proteins, steroids, tannins and glycosides in chloroform extract.

Roles of human body: re used as ayurvedic herbal medicine to pacify burning sensation, diarrhea, inflammations, scalds, diabetes, hemorrhoids, skin diseases, leucorrhoea, fever, kapha, vitiated pitta, splenomegali, anemia, burns and urinary tract infections.

Anti-ulcer property: D. malabarica grows well all over India and other humid regions of the world. It is an evergreen tree with extensively branched, expanding crown. The bark, leaves, flowers and fruits of D. malabarica are used as ayurvedic herbal medicine. The postulated that flavonoids reduce histamine secretion from the mast cells. The reduction of histamine secretion may be attributed to inhibition of histidine decarboxylase enzyme and promoting biosynthesis of prostaglandin, which may be related to the anti-ulcer activity [17].

#### 8. Musa paradisiaca Linn

Family name: Musaceae

Common name: bananas

Parts used: flowers, seeds, roots

Active constituents: The active chemical constituents of M. paradisiaca include phytochemicals like flavonoids, phenols and glycosides. Different investigations reported various phytochemicals in different sections of banana. Many flavonoids and their related compounds have been isolated from the raw banana fruit, known as plantain. Roles of human body:

It is used for the treatment of diseases like leprosy, epilepsy, hysteria, hemorrhage, fever, insect bites and digestive disorders. The seeds and roots are used for the treatment of digestive troubles. Anti-ulcer property: observed presence of certain secondary metabolites like saponins, glycosides, tannins alkaloids, volatile oil and flavonoids in the preliminary phytochemical screenings carried out on *M. paradisiaca* var. *sapientum* peels. The phytochemical screening with ethanol and methanol extracts of *M. paradisiaca* substantiated the occurrence of several secondary metabolites [18].

### 9. *Ocimum tenuiflorum* linn

Family name: Lamiaceae

Common name: tulasi

Parts used: leaf, roots, seed, flowers, fixed oil.

Active constituents: Flavonoids are the most abundant phytochemicals with low-molecular-weight polyphenol structures. *Ocimum tenuiflorum* contains different kinds of flavonoids, which are responsible for the plant's therapeutic activity

Roles in human body: Its dried leaves have been used as insect repellent in grain storages. The aromatic leaves and flowers are used in various forms including, decoction, tea and tincture. The infusions and decoction are considered to be stomachic and expectorant. The decoctions are used in common ailments like- bronchitis, coughs, diarrhea and skin diseases.

Anti-ulcer property: The ulcer protective effect may be attributed to the anti-secretory, anti-lipoxygenase and anti-histamine effect of the oil. The oil significantly reduces ulcer index in a dose related fashion. They also ascribed the inhibitory impact of fixed oil on gastric ulcer by 5-lipoxygenase pathway inhibition or leukotriene antagonistic action. Histamine-induced gastric ulcer [19].

### 10. *Allium Sativum*

Family name: Liliaceae

Common name: garlic

Parts used: fruits

Active constituents: aqueous juice

Roles in human body: Mustard or coconut oil in which *A. sativum* has been fried is an excellent application for maggots infesting ulcers, ulcerated surfaces, and wounds.

Antiulcer property: The juice of *A. sativum* mixed with 3 or 4 portions of water has been used as a lotion for washing wounds and as well as foul ulcers. Garlic is a common bulb vegetable that is used to flavor and flavor food. This paper attempts to examine the therapeutic uses and potential role in the drug development of garlic for various human diseases. Garlic, which is utilized as a spice and flavoring ingredient, is found to have fundamental nutritional components [20].

### CONCLUSION

High blood pressure is one of the most important causes of heart disease and if the blood pressure is

kept under control, it will not cause any damage to the heart. But when the blood pressure rises, and when the antioxidant pressure in the blood rises. The potential of medicinal plants in treating peptic ulcers highlights the importance of preserving traditional knowledge and promoting further research in this area. New drugs of herbal origin. Various plant extracts and isolated compounds from them have significant antiulcer and gastroprotective activity. Flavonoids and tannins isolated from plant extract can play important role in ulcer healing. Various phytochemicals including flavonoids, tannins, saponins, terpenoids showed their antiulcer activity. The activity is imparted due to their property as cryoprotection, antisecretory and antioxidants.

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### REFERENCES

- Gadekar R, Singour PK, Chaurasiya PK, Pawar RS, Patil UK. A potential of some medicinal plants as antiulcer agents. *Pharmacogn Rev.* 2010;4(8):136-146. doi:10.4103/0973-7847.70906.
- Kaur D, Rana AC, Sharma N, Kumar S. Herbal drugs with antiulcer activity. *J Appl Pharm Sci.* 2012;2(3):160-165. doi:10.7324/JAPS.2012.2319.
- Hiruma-Lima CA, Santos LC, Kushima H, Pellizzon CH, Silveira GG, Vasconcelos PC, Vilegas W, Brito AS. *Qualea grandiflora*, a Brazilian "Cerrado" medicinal plant presents an important antiulcer activity. *J Ethnopharmacol.* 2006;104(1-2):207-214. doi:10.1016/j.jep.2005.09.002.
- Balekar N, Jain DK, Dixit PV, Bhadoriya SS. Evaluation of antiulcer activity of whole plant extract of *Malvastrum tricuspidatum* in experimental animals. *Iran J Pharm Ther.* 2012;11(2):1-6.
- Assaleh FH, Chandu BR, Peraman R, Katakam P. Synthesis of some newer nalidixic acid derivatives as potent antimicrobial agents. *Res Rev J Chem.* 2013;2(1):1-6.
- Bell NJ, Hunt RH. Role of gastric acid suppression in the treatment of gastro-oesophageal reflux disease. *Gut.* 1992;33(1):118-124. doi:10.1136/gut.33.1.118.
- Prasanthi G, Chandu BR, Pradeep Kumar Y, Swarnalatha D, Gopinath. Chemical pharmacology of khat leaves. *J Glob Trends Pharm Sci.* 2014;5(4):2024-2029.

8. Shim KN, Song EM, Jeon YT, Kim JO, Jeon SR, Chang DK, Song HJ, Lim YJ, Kim JS, Ye BD, Park CH. Long-term outcomes of NSAID-induced small intestinal injury assessed by capsule endoscopy in Korea: a nationwide multicenter retrospective study. *Gut Liver*. 2014;9(6):727-732.
9. Rani CHU, Sumalatha G, Rao CHB, Varalakshmi TN. Alzheimer's disease-pharmacotherapeutic interventions. *Int J Pharm Chem Sci*. 2013;2(2):1-6.
10. Srinivas TL, Lakshmi SM, Shama SN, Reddy GK, Prasanna KR. Medicinal plants as anti-ulcer agents. *J Pharmacogn Phytochem*. 2013;2(4):91-97.
11. Borrelli F, Izzo AA. The plant kingdom as a source of anti-ulcer remedies. *Phytother Res*. 2000;14(8):581-591. doi:10.1002/1099-1573(200012)14:8<581::AID-PTR776>3.0.CO;2-S.
12. Vimala G, Shoba FG. A review on antiulcer activity of few Indian medicinal plants. *Int J Microbiol*. 2014;2014:519590. doi:10.1155/2014/519590.
13. Hwisa NT, Gindi S, Chandu BR, Katakam P. Evaluation of antiulcer activity of *Picrasma quassioides* (D. Don) Bennett aqueous extract in rodents. *VRI Phytomedicine*. 2013;1(1):27-31.
14. Parihar S, Sharma D, Chirania A, Telrandhe UB. A review on the pharmacology of the leaf extract of *Catharanthus roseus*. *Asian J Pharm Res Dev*. 2022;10(1):32-37.
15. Park JU, Kang JH, Rahman MA, Hussain A, Cho JS, Lee YI. Gastroprotective effects of plant extracts on gastric mucosal injury in Sprague-Dawley rats. *Biomed Res Int*. 2019;2019:8759708. doi:10.1155/2019/8759708.
16. Kiranmai AS, Hemamalini K, Vasireddy U. Comparative study of antiulcer activity of methanolic extracts of *Wattakaka volubilis* and *Tabebuia rosea* in rats. *Int J Pharm Sci Res*. 2013;4(12):4625-4631.
17. Vijayalakshmi P, Girish C, Ramesh M, Rao CB, Nama S. A review on Alzheimer's disease. *Int J Pharm Biosci*. 2014;4(2):19-27.
18. Singh S, Majumdar DK. Evaluation of gastric antiulcer activity of fixed oil of *Ocimum sanctum* (Holy Basil). *J Ethnopharmacol*. 1999;65(1):13-19. doi:10.1016/S0378-8741(98)00142-1.
19. Hwisa NT, Gindi S, Rao CB, Katakam P, Chandu BR. Evaluation of antiulcer activity of *Picrasma quassioides* Bennett aqueous extract in rodents. *VRI Phytomedicine*. 2013;1:27-31.
20. Prasanthi G, Chandu BR, Pradeep Kumar Y, Swarnalatha D, Gopinath. Chemical pharmacology of khat leaves. *J Glob Trends Pharm Sci*. 2014;5(4):2024-2029.