INTERNATIONAL
AYURVEDIC MEDICAL
JOURNAL

IAMJ

**International Ayurvedic Medical Journal, (*ISSN: 2320 5091)* (May, 2017) 5 (5)**

# A REVIEW ON ANTI-ULCER ACTIVITY OF FEW HERBAL PLANTS

**Harish Vishnoi[1], L.N.Sharma[2], Manoj Adhlakha[3], Ayush Kumar Garg[4]**

[1]PG Scholar, [2]Asso. Professor, [3]Asst. Professor, [4]Pg scholar -
Department of Dravyaguna, Dr. Sarvapalli Radhakrishanan Rajasthan AyurvedUniversity, Jodhpur, Rajasthan, India

**Email:** dr.harish.bishnoi@gmail.com

## ABSTRACT

Ulcer is a common gastrointestinal disorder which is seen among many people. An ulcer is erosion in the lining of the stomach and duodenum. There are two types of ulcers -gastric and duodenal ulcer. Together, they are called peptic ulcer. A number of synthetic drugs are available to treat ulcers. But these drugs are expensive and are likely to produce more side effects when compared to herbal medicines. In recent years, gastric ulcer has also been associated with infection of gastrointestinal mucosal tissue by Helicobacter pylori .There are many herbs and plant products that have been found to play a role in protecting or helping to heal stomach and peptic ulcers. .Herbal plants are considered as safe for peptic ulcer treatment with fewer side effects. This article reviews the features of some of the plants *like Glycyrrhizaglabra, Emblica officinalis, Asparagus racemosus, Eclipta alba, Adhatodavasica, Cocos nucifera, Musa sapientumOcimum sanctum L.* are reported to possess antiulcer and ulcer healing properties. The aim of this review is to know more about the anti - ulcer property of the medicinal plants.

**Keywords:** peptic ulcer, synthetic drugs, herbal medicines, Helicobacter pylori

## INTRODUCTION

Ulcers are an open sore of the skin or mucus membrane characterized by sloughing of inflamed dead tissue [1]. Ulcers are lesions on the surface of the skin or a mucous membrane characterized by a superficial loss of tissue. Ulcers are most common on the skin of the lower extremities and in the gastrointestinal tract, although they may be encountered at almost any site. There are many types of ulcer such as mouth ulcer, esophagus ulcer, peptic ulcer, and genital ulcer. Of these peptic ulcer is seen among many people. The peptic ulcers are erosion of lining of stomach or the duodenum [2]. The two most common types of peptic ulcer are called “gastric ulcer” and “duodenal ulcer.” The name refers to the site of

ulceration. A person may have both gastric and duodenal ulcers at the same time. Gastric ulcers are located in the stomach, characterized by pain; ulcers are common in older age group. Eating may increase pain rather than relieve pain. Other symptoms may include nausea, vomiting, and weight loss. Although patients with gastric ulcers have normal or diminished acid production, yet ulcers may occur even in complete absence of acid [3]. Duodenal ulcers are found at the beginning of small intestine and are characterized by severe pain with burning sensation in upper abdomen that awakens patients from sleep. Generally, pain occurs when the stomach is empty and relieves after eating. A duodenal ulcer is more common in younger individuals and predominantly affects males. In the duodenum, ulcers may appear on both the anterior and posterior walls [4]. In some cases, peptic ulcer can be life threatening with symptoms like bloody stool, severe abdominal pain, and cramps along with vomiting blood [5].

**PATHOPHYSIOLOGY**

The pathophysiology of peptic ulcer disease involves an imbalance between offensive (acid, pepsin, and Helicobacter pylori) and defensive factors (mucin, prostaglandin, bicarbonate, nitric oxide, and growth factors) [6]. Peptic ulcers are once believed to be caused by spicy food and stress; these have been found merely to be aggravating factors and the real causes have been found by research to include bacterial infection (Helicobacter pylori) or reaction to various medications, particularly NSAIDS (nonsteroidal anti-inflammatory drugs) . Helicobacter pylori, NSAIDS drugs, emotional stress, alcohol abuse, and smoking are the principal etiological factors associated with peptic ulcer. The Gram-negative bacterium Helicobacter pylori remain present between the mucous layer and the gastric epithelium and are strategically designed to live within the aggressive environment of the stomach. Initially, Helicobacter pylori reside in the antrum but over time migrate toward the more proximal segments of the stomach.

In this modern era also 75–80% of the world populations still use herbal medicine mainly in developing countries, for primary health care because of better cultural acceptability, better compatibility with the human body, and lesser side effects. Preliminary phytochemical screening of this medicinal plant identified the presence of important secondary metabolites like flavonoids and tannins which are the active principles of antiulcer activity.

**Finding & Mode of action of Medicinal Herbs:**

Present study was conducted to review medicinal plants considered as gastro protective and healing agents on ulcers in ayurvedic resources and beside that to gather evidence for their effectiveness and biological mechanisms in modern investigation.

Meteria Medica provides lots of information about ethno medicinal herbs, which are valuable as antiulcer agents and their use experimentally was evaluated and proved by many researchers for its antiulcer activity. Following compiled data suggested that medicinal plant those are evidently reported for its antiulcer activity.

**1.Ocimum sanctum**

Ocimum sanctum (Lamiaceae) is commonly known as "holy basil." It is locally called "tulsi." It grows throughout India. The name Tulsi means "the incomparable one." It is one of the sacred herbs for Hindus in the Indian subcontinent. Chemical constituents in this plant are alkaloids, tannins, saponins, flavonoids, and sterols [7].In Ayurvedic Indian materiamedica describes the use of the plant in a variety of ailments. The fresh leaves are taken as Prasad by millions of Indian for many years. A tea prepared with the leaves of Tulsi is commonly used for intestinal disorders [8].In Recent Studies. The fixed oil of O. sanctum was administered in the doses of 1, 2, and 3 mL/kg intraperitoneally, in the rats in which ulcer is induced by aspirin, indomethacin, alcohol, and stress-induced ulceration. It reduces the ulcer index in dose-dependent manner [9].

**2. Zingiber officinalis**

It is commonly known as Ginger which is consumed as a flavoring agent, spice belongs to the family Zingiberaceae. Powdered rhizome of ginger root has been used as a traditional remedy for gastrointestinal complaints including in treating peptic ulceration despite the fact that ginger promotes gastric secretions [10].

**3.Glycyrrhizaglabra L**

It is a sweet, moist, soothing, flavoring herb commonly known as Liquorice belonging to the family Fabaceae. The plant is widely used as a medicine from the ancient medical history of ayurveda. The glycyrrhetinic acid of Liquorice showed potent in vitro activity against H. pylori indicating its antiulcer effect on peptic ulcers.[11]

**4.Asparagusracemosus**

Asparagus racemosus (AR), belonging to the family Liliaceae, is a well-known ayurvedicrasayana. AR is reported to be antidiarrheal, antibacterial and antiulcer. [12] The plant did not show any significant effect on acid and peptic activity, but it increased mucin secretion tremendously, suggesting cytoprotective property as the possible mechanism. The plant did not show any effect on acid secretion.

***5.Eclipta alba***

Ecliptaalba Linn. (Asteraceae) is used traditionally in Indian system of medicine as anti inflammatory, hepatoprotective, hypoglycemic, immunomodulator, in wound healing. It shows significant attenuation in lipid peroxidation, superoxide dismutase activity, whereas, elevate catalase enzyme levels. Antisecretory activity of *Eclipta alba*was evidenced by significant reduction in gastric volume, acid output and increase in gastric pH**.**

**6.Adhatodavasica**

It's (Acantheceae), commonly known as *Vasaka*, is a well-known plant in indigenous systems of medicine and is used for its beneficial effects, particularly in bronchitis. Adhatoda vasica was studied for its anti-ulcerogenic activity against ulcers induced by ethanol, pylorus, and aspirin. Adhatoda leaf powder showed a considerable degree of anti-ulcer activity in experimental rats when compared with controls. The highest degree of activity was observed in the ethanol-induced ulceration model [13]

These results suggest that in addition to its classically established pharmacological activities, *Adhatoda vasica* has immense potential as an anti-ulcer agent. Further research showed that a syrup of *Adhatod*a improved symptoms of dyspepsia [14].

**7.*Musa sapientum***

*Musa sapientum (Family: Musaceae),* known as banana, is a familiar tropical fruit. It finds its origin from native South-Western Pacific home and spread to India later on.Banana is used in the herbal medicine to treat peptic ulcer disease. The use of M. sapientum in peptic ulcer as a component of herbal medicine has been evaluated and found effective (Goel and Sairam, 2002). Dunjić et al. (1993) reported that pectin and phosphatidylcholine in green banana strengthens the mucousphospholipid layer that protects the gastric mucosa. They also reported that the gastric mucosa protective activity of the banana is due to multiple active components.

***8.Cocosnucifera,***

*Cocos nucifera* (L.) is an important member of the family Arecaceae (palm family) popularly known as coconut, coco, coco-da-bahia, or coconut-of-the-beach. A protective action against aspirin/histamine induced gastric damage has been protected with coconut water .Its kernel reduced the gastric acidity in the duodenal patient.

**Table 1:** Herbal plant extracts with antiulcerogenic property

| Plant | Family | Extract | Mechanism of action |
|---|---|---|---|
| *Glycyrrhizaglabra* | Fabaceae | Water decoction | Promotes mucosal defensive factors by enhancing mucin secretion[11] |
| *Zingiber officinalis* | Zingiberaceae | Fresh juice | It promotes gastric secretions. |
| *Asparagus racemosus* | Liliaceae | Fresh juice | Promotes mucosal defensive factors by enhancing mucin secretion and life span of induced mucosal cells[12] |
| *Ocimum sanctum L* | Labiatae | Fresh juice | Decreases acid secretion and increases mucin secretion |
| *Musa sapientum* | *Musaceae* | Methanol extract of the peels on *Musa sapientum* (MEMS) | protects the gastric mucosa |
| *Eclipta alba,* | Asteraceae | 50% ethanol extract of Eclipta alba. | antisecretory and gastroprotective activity |
| *Cocos nucifera,* | Arecaceae | Coconut water | Aspirin induced gastritis |
| *Adhatodavasica* | Acanthancae | Leaf powder | the ethanol-induced ulceration |

## CONCLUSION

From this study we can conclude that studies with plant sources can result in novel and effective pattern of treatment. Current stalemates of modern medicine in the management of various ailments incline research tendencies to traditional medicine. In this respect, traditional medicine has introduced good protocols for treatment of various gastrointestinal disorders. All of the remedies presented here had adequate evidence from traditional or scientific source for their efficacy in management of ulcers.

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**Source of Support: Nil**
**Conflict Of Interest: None Declared**

How to cite this URL: Harish Vishnoi Et Al: A Review On Anti-Ulcer Activity Of Few Herbal Plants. International Ayurvedic Medical Journal {online} 2017 {cited May, 2017} Available from: http://www.iamj.in/posts/images/upload/1642_1646.pdf