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## HERBS USED IN PEPTIC ULCER

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### Abstract

Peptic ulcer, also known as PUD or peptic ulcer disease, is an ulcer (defined as mucosal erosions equal to or greater than 0.5 cm) of an area of the gastrointestinal tract that is usually acidic and thus extremely painful. Symptoms include abdominal pain with severity relating to mealtimes, after around 3 hours of taking a meal; bloating and abdominal fullness; nausea, and copious vomiting; loss of appetite and weight loss etc. There are many herbs, nutrients, and plant products that have been found to play a role in protecting or helping to heal stomach and peptic ulcers. Few human trials are available, but many have show good potential in animal or in vitro studies. And the present study was aimed to collect information on various herbs which are used in treating Peptic Ulcer in various parts of the world, depending upon the data's provided by various researchers.

**Key Words:** Peptic ulcer, Medicinal Plants, Herbal Drugs.

### Introduction

Peptic ulcer, also known as PUD or peptic ulcer disease, is an ulcer (defined as mucosal erosions equal to or greater than 0.5 cm) of an area of the gastrointestinal tract that is usually acidic and thus extremely painful.<sup>1</sup> Symptoms includes abdominal pain, classically epigastric with severity relating to mealtimes, after around 3 hours of taking a meal (duodenal ulcers are classically relieved by food, while gastric ulcers are exacerbated by it); bloating and abdominal fullness; water brash (rush of saliva after an episode of regurgitation to dilute the acid in esophagus); nausea, and copious vomiting; loss of appetite and weight loss; hematemesis (vomiting of blood); this can occur due to bleeding directly from a gastric ulcer, or from damage to the esophagus from severe/continuing vomiting; melena (tarry, foul-smelling feces due to oxidized iron from hemoglobin).

Rarely, an ulcer can lead to a gastric or duodenal perforation, which leads to acute peritonitis. This is extremely painful and requires immediate surgery. A history of heartburn, gastro esophageal reflux disease (GERD) and use of certain forms of medication can raise the suspicion for peptic ulcer. Medicines associated with peptic ulcer include NSAID (non-steroid anti-inflammatory drugs) that inhibit cyclooxygenase, and most glucocorticoids (e.g. dexamethasone and prednisolone).

In patients over 45 with more than two weeks of the above symptoms, the odds for peptic ulceration are high enough to warrant rapid investigation by EGD.<sup>2,3</sup> The timing of the symptoms in relation to the meal may differentiate between gastric and duodenal ulcers: A gastric ulcer would give epigastric pain during the meal, as gastric acid production is increased as food enters the stomach. Symptoms of duodenal ulcers would initially be relieved by a meal, as the pyloric sphincter closes to concentrate the stomach contents, therefore acid is not reaching the duodenum. Duodenal ulcer pain would manifest mostly 2-3 hours after the meal, when the stomach begins to release digested food and acid into the duodenum. Also, the symptoms of peptic ulcers may vary with the location of the ulcer and the patient's age. Furthermore, typical ulcers tend to heal and recur and as a result the pain may occur for few days and weeks and then wane or disappear. Usually, children and the elderly do not develop any symptoms unless complications have arisen.

### Prevention.

For prevention you well want to consume foods that increase digestive function bitter greens as a salad and warming spices such as turmeric and garlic can be helpful, if there is systematic inflammation and heat, then focusing on eliminating and draining heat systemically will be a strong focus. Cooling foods, berries, and healthy fats should be emphasized while heating foods such as alcohol and excessive hot peppers should be eliminated.

### Symptoms.

The pain is described to be sharp growing and burning. Depending on the where the ulcer is located the symptoms of ulcer can vary. The symptoms of some peptic ulcer and duodenal ulcer are given below

- Pain can be felt anywhere from the belly button to the breast bone. Sometimes it felt in back.
- The pain can be last from small minutes to several hours.
- Typically a duodenal ulcer elicits more pain when the stomach is empty and it temporarily relived when eating.
- In case of bleeding ulcer accompanied by vomiting or dark to black stool.

Typically a peptic ulcer is worse during the night or when a person lays down.

### Cause of Peptic Ulcer

**Helicobacter pylori:** A major causative factor (60% of gastric and up to 90% of duodenal ulcers) is chronic inflammation due to *Helicobacter pylori* that colonizes the antral mucosa. The immune system is unable to clear the infection, despite the appearance of antibodies. Thus, the bacterium can cause a chronic active gastritis (type B gastritis), resulting in a defect in the regulation of gastrin production by that part of the stomach, and gastrin secretion can either be decreased (most cases) resulting in hypochlorhydria or increased.

A study of peptic ulcer patients in a Thai hospital showed that chronic stress was strongly associated with an increased risk of peptic ulcer, and a combination of chronic stress and irregular mealtimes was a significant risk factor.

**Gastrinomas (Zollinger Ellison syndrome):** it is a rare gastrin-secreting tumors, also cause multiple and difficult to heal ulcers.

**Smoking:** Studies show that cigarette smoking can increase a person's chance of getting an ulcer. Smoking also slows the healing of existing ulcers and contributes to ulcer recurrence.

**Caffeine:** Beverages and foods that contain caffeine can stimulate acid secretion in the stomach. This can aggravate an existing ulcer, but the stimulation of stomach acid can't be attributed solely to caffeine.

**Alcohol:** While a link hasn't been found between alcohol consumption and peptic ulcers, ulcers are more common in people who have cirrhosis of the liver, a disease often linked to heavy alcohol consumption.

**Genetic factor:** People with blood group O appear to be more prone to developed peptic ulcer than those with other blood groups. Genetic influences appear to have greater role in duodenal ulcers as evidence by their occurrence in families monozygotic twins and association with HLB-B5 antigen.

### Plant Used for Treating Peptic Ulcer<sup>6</sup>

There are many herbs, nutrients, and plant products that have been found to play a role in protecting or helping to heal stomach and peptic ulcers. Few human trials are available, but many have show good potential in animal or in vitro studies.

### PLANT PROFILES

#### ASPARAGUS RACEMOSUS

**Synonyms:** Satavar, Shatavari, Shatamuli

**Family:** Asparagaceae

#### Geographical source:

It is found distributed throughout topical Asia, Africa and Australia .In India, it is found in Himalayas up to an altitude of 1300 to 1400m and all tropical part of India .It occurs as wild plant in dry and deciduous forests of Maharashtra.

#### Morphology:

Satavar has small pine-needle-like leaves that are uniform and shiny green. In July, it produces minute, white flowers on short, spiky stems, and in September it fruits blackish-purple, globular berries.

It has an adventitious root system with tuberous roots that measures about one meter in length, tapering at both ends, and for each plant number roughly a hundred <sup>7</sup>



**Chemical constituent:**

Shatavari roots contain 4 steroid saponin, shatavarin I-IV (0.2%). Shatavarin I is the major glycoside with 3 glucose and rhamnose moieties attached to sarsapogenin, whereas in shatavarin IV 2 glucose and 1 rhamnose moieties are attached. Flowers and fruits contain quercetin, rutin and hyperoside, while leaves contain diosgenin and hyperoside, while leaves contain diosgenin and quercetin.<sup>7</sup>

**Use:**

*Asparagus racemosus* (Shatavari) is recommended in Ayurvedic texts for prevention and treatment of gastric ulcers, dyspepsia and as a galactagogue. Generally the root is employed in diarrhoea as well as in chronic colic and dysentery problems. Root boiled with some bland oil, is applied in various skin diseases. Root is boiled in milk and the milk is administered to relieve bilious dyspepsia and diarrhoea and to promote appetite; root is also used in rheumatism. Tubers are candied and taken as a sweetmeat. Fresh root juice is given with honey as a demulcent. Boiled leaves smeared with ghee are applied to boils, smallpox, etc., in order to prevent their confluence. Juice of this drug taken with milk is useful in gonorrhoea.<sup>8</sup>

**ERUCA SATIVA**

**Synonyms:** Rocket (roquette) or Arugula,

**Family:** Brassicaceae

**Distribution:** It is a species of Erucanative to the Mediterranean region, from Morocco and Portugal east to Lebanon and Turkey.

**Morphology:** It is an annual plant growing 20–100 centimeters (8–39 in) in height. The leaves are deeply pinnately lobed with four to ten small lateral lobes and a large terminal lobe. The flowers are 2–4 cm (0.8–1.6 in) in diameter, arranged in a corymb, with the typical Brassicaceae flower structure; the petals are creamy white with purple veins, and the stamens yellow; the sepals are shed soon after the flower opens. The fruit is a siliqua (pod) 12–35 millimeters (0.5–1.4 in) long with an apical beak, and containing several seeds (which are edible).<sup>9</sup>



**Chemical constituent:** Phytochemical investigations of the aqueous extract of *Eruca sativa* fresh leaves, afforded the presence of nine natural flavonoid compounds which were isolated and identified as kaempferol 3-O-(2''-O-malonyl-β-D-glucopyranoside)-4'-O-β-D-glucopyranoside (1), kaempferol 3,4'-O-diglucopyranoside (2), rhamnocitrin 3-O-(2''-O-methylmalonyl-β-D-glucopyranoside)-4'-O-β-D-glucopyranoside (3), 3-O-glucopyranoside (4), 4'-O-glucopyranoside (5), rhamnocitrin 3-O-glucopyranoside (6), 4'-O-glucopyranoside (7), kaempferol (8) and rhamnocitrin (9). Compounds (1) and (3) appear to be novel. Elucidation of the chemical structures of all the isolated compounds was determined by different spectroscopic methods in addition to the chemical and physical methods of analysis.<sup>10</sup>

**Use:** Rocket extract possesses anti-secretory, cytoprotective, and anti-ulcer activities against experimentally-induced gastric lesions. The anti-ulcer effect is possibly through prostaglandin-mediated activity and/or through its anti-secretory and antioxidant properties.

It has a rich, peppery taste, and has an exceptionally strong flavour for a leafy green. It is generally used in salads, often mixed with other greens, but is also cooked as a vegetable or used raw with pasta or meats in northern Italy and in coastal Slovenia.

**EMBLICA OFFICINALIS**

**Synonyms:** Indian goosber, Arab. Amlaj; Assam. Amluki; Ayurvedic: Amalaki; Beng. Amia, Amlaki, Amla, Arnloki.

**Family:** Euphorbiaceae

**Distribution**<sup>11</sup>: The Deccan, the sea-coast districts and Kashmir [Nadkarni and Nadkarni]. It is common all over tropical and sub-tropical India and also found in Burma [Dey], it is abundant in deciduous forests of Madhya Pradesh]. Grows in tropical and subtropical parts of Ceylon, Malay Peninsula and China. In Ceylon, it is very common in exposed places of patana land in the moist regions up to 4000 feet altitude.

**Morphology**<sup>11</sup>: Tree; leaves alternate, bifarious, pinnate, flower -bearing; leaflets numerous, alternate, linear-obtuse, entire; petioles striated, round; calyx 6-parted; flowers in the male very

numerous in the axils of the lower leaflets, and round the common petiole below the leaflets; in the female few, solitary, sessile,



mixed with some males in the most exterior floriferous axils; stigmas 3; drupe globular, fleshy, smooth, 6-striated; nut obovate-triangular, 3-celled; seeds 2 in each cell; flowers small, greenish yellow. Flowers during October.

**Chemical constituent**<sup>11</sup>: The fruit is a very rich source of vitamin C according to most if not nearly all references, this is probably not the case. It was proposed that superior effect of the mistaken "vitamin C" component is actually the more stable and potent anti-oxidant effect of the tannins that appeared to be the vitamin. A repeated laboratory test showed that every 100g of fresh fruit provides 470 - 680mg of vitamin C. The vitamin value of amla increased further when the juice was extracted from the fruit. The dehydrated berry provided 2428 - 3470mg of vitamin C per 100g. Its mineral and vitamin contents include calcium, phosphorous, iron, carotene, thiamine, riboflavin, and niacin. The seeds of the Indian gooseberry contains a fixed oil, phosphatides, and an essential oil. The fruits, bark, and the leaves of this tree are rich in tannin. The fruits, leaves and bark are rich in tannins. The root contains ellagic acid and lupeol and bark contains leucodelphinidin. The seeds yield a fixed oil (16%) which is brownish- yellow in colour. It has the following fatty acids: linolenic (8.8%), linoleic (44.0%), oleic (28.4%), Stearic (2.15%), palmitic (3.0%) and myristic (1.0%). The ethanol soluble fraction contains free sugars, D- glucose, D-fructose, D-myo-inositol.

**Uses**<sup>11</sup>: Indian gooseberry has been used as a valuable ingredient of various medicines in India and Middle East from time immemorial. Aperient the green fruits are made into pickles and preserves to stimulate the appetite. Antibacterial, antifungal, antiviral Medical studies conducted on Amla fruit suggest that it has antiviral properties and also functions as an antibacterial and anti-fungal agent. Antioxidant The use of amla as an antioxidant has been examined by a number of authors. Experiments conducted at the Niwa Institute of Immunology in Japan have shown Amla to be a potent scavenger of free radicals. The studies showed that Amla preparations contained high levels of the free-radical scavenger, superoxide dimutase (SOD), in the experimental subjects.

## ALOE VERA

**Synonyms:** Aloe, Musabber, kumara

**Family:** Liliaceae

**Distribution**<sup>12</sup>: The natural range of Aloe Vera is unclear, as the species has been widely cultivated throughout the world. Naturalised stands of the species occur in the southern half of the Arabian peninsula, through North Africa (Morocco, Mauritania, Egypt) as well as Sudan and neighbouring countries, along with the Canary, Cape Verde, and Madeira Islands. This distribution is somewhat similar to the one of *Euphorbia balsamifera*, *Pistacia atlantica*, and a few others, suggesting that a dry sclerophyl forest once covered large areas, but has been dramatically reduced due to desertification in the Sahara, leaving these few patches isolated. Several closely related species (or sometimes identical) can be found on the two extreme sides of the Sahara: Dragon trees and *Aeonium* being some of the most representative examples.



The species was introduced to China and various parts of southern Europe in the 17th century. The species is widely naturalized elsewhere, occurring in temperate and tropical regions of Australia, Barbados, Belize, Nigeria, Paraguay and the US. It has been suggested that the actual species' distribution is the result of human cultivation and that the taxonomy could be doubtful too.

**Morphology**<sup>12</sup>: Aloe Vera is a stem less or very short-stemmed succulent plant growing to 60–100 cm (24– 39 in) tall, spreading by offsets. The leaves are thick and fleshy, green to grey-green, with some varieties showing white flecks on the upper and lower stem surfaces. The margin of the leaf is serrated and has small white teeth. The flowers are produced in summer on a spike up to 90 cm (35 in) tall, each flower pendulous, with a yellow tubular corolla 2– 3 cm (0.8–1.2 in) long. Like other Aloe species, Aloe Vera forms arbuscular mycorrhiza, a symbiosis that allows the plant better access to mineral nutrients in soil.

**Chemical constituent**<sup>13</sup>: Scientists have discovered over 150 nutritional ingredients in Aloe Vera. There seems to be no single magic ingredient. They all work together in a synergistic way to create healing and health giving benefits. The ten main areas of chemical constituents of Aloe Vera include: amino acids, anthraquinones, enzymes, minerals, vitamins, lignins, monosaccharide, polysaccharides, salicylic acid, saponins, and sterols.<sup>33</sup>

**Uses**<sup>12</sup>: Aloe Vera juice is used for consumption and relief of digestive issues such as heartburn and irritable bowel syndrome, although it bears significant potential to be toxic when taken orally, it is common practice for cosmetic companies to add sap or other derivatives. Other uses for extracts of aloe Vera include the dilution of semen for the artificial fertilization of sheep, use as fresh food preservative, and use in water conservation in small farms. The supposed therapeutic uses of aloe Vera are not exclusive to the species and may be found to a lesser or greater degree in the gels of all aloes, and indeed are shared with large numbers of plants belonging to the family Asphodelaceae. *Bulbine frutescens*, for example, is used widely for the treatment of burns and a host of skin afflictions.

## CONCLUSION

From this study we concluded that the above plants have efficacy to protect or treat peptic ulcer, induced by various factors such as H.pylori, aspirin, into methacin, alcohol etc. This 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

The combination of herbal products and standard anti-gastric ulcer drugs might present a synergistic effect against H. pylori and gastric ulcer disease and improve the outcome for patients with gastric ulcer. With only a few human studies, it is suggested to conduct further clinical studies with larger sample sizes on the efficacy and safety of medicinal plants with antiulcer activity. Also, it would be beneficial to design studies to investigate and further elucidate the mechanisms of action of medicinal plants used for the treatment or prevention of peptic ulcer.

Finally, herbal products used for medicinal purposes require licensing in order to ameliorate their safety and quality, and ensure that randomized controlled investigations validate demands of its possible efficacy. With increased reports of herb–drug interactions, there is still a problem of deficient research in this field, with no measures taken to address this problem. Hence, pharmacists and doctors should be aware especially of the risks associated with the usage of herbal preparations, whether on their own or in combination with other herbal or standard conventional therapy.

## Authors Contributions

All the author have contributed equally

## Conflicts of interest:

There are no conflicts of interest among the authors.

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