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## Overview of various medicinal plants having potent activity against ulcers

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Article History:	Abstract
Received on: 09-05-2020 Accepted on: 13-07-2020 Published on : 17-07-2020	<p>A peptic ulcer is the most widely recognized gastrointestinal problem in clinical practice. Various medications including proton pump inhibitors and H<sub>2</sub> receptor antagonists are accessible for the treatment of peptic ulcers. However, these medications have demonstrated the frequency of side effects and drug interaction. Medicinal plants give a successful and more secure route in the treatment of peptic ulcers. Numerous therapeutic plants are shown to have potential antiulcer activity. Various methods like pylorus ligation method, indomethacin-induced gastric ulcer, acetic acid-induced ulcer model, ethanol-induced gastric ulcer were used to induce ulcer. The present paper is an attempt to present a comprehensive review of different methods for inducing ulcers, various plant parts, and their solvent extracts having a beneficial antiulcer activity.</p> <p><i>Key words:</i> peptic ulcer, side effects and drug interaction.</p>
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### Introduction

Ulcers are a mucus membrane or open skin sore which is described by inflamed dead tissue sloughing [1]. Ulcers are lesions identified by superficial tissue loss on the surface of the skin or a mucous membrane. Ulcers are categorised as mouth ulcers, peptic ulcers, genital ulcers, and esophagus ulcers. Occurrence of peptic ulcer is common among many individuals. Stomach or duodenum lining erosion is referred as peptic ulcer [2].

Recurrent oral ulceration, stress ulcer, gastric ulcer, non-steroidal anti-inflammatory drug-induced ulcers, and duodenal ulcer are the types of peptic ulcers. "Gastric ulcer" and "duodenal ulcer" are the two most common forms of peptic ulcer [3].

Usually peptic ulcer develops on the inner lining of the stomach and upper portion of the small intestine. The most common cause of peptic ulcer is an infection due to

bacterium *Helicobacter pylori* [*H. pylori*] and long-term exposure to alcohol, tobacco consumption and nonsteroidal anti-inflammatory drugs [NSAIDs] such as naproxen sodium and ibuprofen [4].

Peptic ulcer disease caused by *H. pylori* affects half of the world's population [5]. The development of different types of lesions was induced by *H. pylori* cytokines that inhibit parietal cell secretion, and affect H<sup>+</sup>/K<sup>+</sup> ATPase or inhibit the production of gastrin [6]. This leads to subsequent increase in the secretion of acid or pepsin from parietal and gastric cells and also enhances histamine release [7].

**Table 01: List of various plants having potent antiulcer activity**

Sl.No	Botanical name	Family	Plant part used	Extracts	Method	References
1.	<i>Bauhinia purpurea</i>	Fabaceae	Leaves	Aqueous extract	Pylorus ligation-induced ulcer model and ethanol- and indomethacin-induced gastric ulcer models.	[8]
2.	<i>Elaeocarpus grandis</i>	Elaeocarpaceae	Aerial parts	Methanolic extract	Indomethacin-induced gastric ulcer.	[9]
3.	<i>Croton macrostachyus</i>	Euphorbiaceae	Root	80% methanol extract	Acidified ethanol-induced ulcer model in Swiss albino mice and pylorus ligation-induced ulcer model in Sprague Dawley rats.	[10]
4.	<i>Cordia africana Lam</i>	Boraginaceae	Seed	80% methanol	Pylorus ligation method.	[11]
5.	<i>Lactuca sativa</i>	Asteraceae	Leaves	Ethanol extract	Cold restraint stress, pylorus ligation, and ethanol-induced ulcers in rats.	[12]
6.	<i>Ficus religiosa L.</i>	Moraceae	Stem, bark	60% ethanol, acetone	Ethanol-induced gastric ulcer.	[13]
7.	<i>Saraca indica</i>	Fabaceae	Leaves	Ethanol	Pylorus ligation, ethanol, and indomethacin in albino rats.	[14]
8.	<i>Ziziphus rugosa Lam</i>	Rhamnaceae	Bark	Ethanol extract	Indomethacin-induced gastric ulcer model and Ethanol-induced gastric ulcer model in rats.	[15]
9.	<i>Rumex nepalensis</i>	Polygonaceae	Root	Hydromethanolic	Cold restraint stress, acetic acid, pyloric ligation-induced ulcer models.	[16]
10.	<i>Macrotyloma uniflorum</i>	Fabaceae	Seeds	Ethanol extract	Stress-induced and pyloric ligation ulcer model.	[17]
11.	<i>Alstonia scholaris</i>	Apocynaceae	Leaves	Hydro-alcoholic extract	Pylorus Ligation method.	[18]
12.	<i>Crepis sancta</i>	Asteraceae	Aerial parts	Methanol extract	Ethanol-induced gastric ulcer in male albino rats.	[19]
13.	<i>Blumea lacera</i>	Asteraceae	Aerial part	70 % ethanol extract	Pyloric ligation, ethanol, and	[20]

					indomethacin-induced ulcer models.	
14.	<i>Ctenolepisgarcini</i>	Cucurbitaceae	Flower	Ethanol	Aspirin-induced ulcers in rats.	[21]
15.	<i>RuelliaTuberosa</i>	Acanthaceae	Aerial parts	Ethyl acetate	Pylorus ligation method in Wister rats.	[22]
16.	<i>CyperusconglomeratusRottb</i>	Cyperaceae	Above-ground parts	Methanol extract	Ethanol-induced gastric ulcer model in rats.	[23]
17.	<i>Hannoaklaineana</i>	Simaroubaceae	Leaves	Methanol extract	Ethanol and indomethacin-induced gastric ulcer Models.	[24]
18.	<i>Hibiscus asper</i>	Malvaceae	Leaves	Methanol fraction	Acidified ethanol-induced ulceration model.	[25]
19.	<i>Alchemilla caucasica</i>	Rosaceae	Aerial parts	Ethanol extract	Indomethacin-induced gastric ulcer model in rats.	[26]
20.	<i>Saracaindica</i>	Cesalpiniaceae	Bark	Aqueous and Ethanolic	Aspirin, pylorus ligation, and stress-induced ulcer models in rats.	[27]
21.	<i>Perseaamericana</i>	Lauraceae	Seed	Aqueous [decoction]	An alcohol-induced peptic ulcer in the guinea pig.	[28]
22.	<i>Hypericumperforatum</i>	Hypericaceae	Leaves	80% ethanol	Ethanol-induced Gastric mucosal injury in Wistar rats.	[29]
23.	<i>Celosia trigyna</i>	Amaranthaceae	Leaves	Hexane, Dichloromethane [DCM], ethyl acetate [EtOAc], and methanol [MeOH]	Ethanol-induced gastric ulcer in adult Wistar rats.	[30]
24.	<i>Spondiasmombin</i>	Anacardiaceae	Leaves	Hexane, ethyl acetate, and ethanol	Ethanol-induced ulcer.	[31]
25.	<i>Balanitesaegyptiaca</i>	Zygophyllaceae	Stem, bark	Aqueous	Acetic acid, pylorus ligation, and indomethacin, - induced ulcer models in rats.	[32]
26.	<i>Phyllanthusniruri</i>	Euphorbiaceae	Leaves	Methanol extract	Ethanol-acid induced gastric mucosal injury in the Swiss albino rats.	[33]
27.	<i>Salvadoraindica</i>	Salvadoraceae	Leaves	Ethanolic extract	Pyloric ligation induced gastric ulceration Ethanol-induced	[34]

					mucosal damage in rats Cysteamine induced duodenal ulceration.	
28.	<i>Osyrisquadripartita</i>	Santalaceae	Leaves	80% methanol	Ethanol-induced, and pylorus ligation-induced models.	[35]
29.	<i>Asparagus racemosus</i>	Asparagaceae	Whole herb	50% ethanol	Phenylbutazone induced ulceration.	[36]
30.	<i>Cyperusalternifolius</i>	Cyperaceae	Tubers and aerial parts	Methanol or ethyl acetate extracts	Indomethacin-induced gastric ulcer model in Wistar rats.	[37]
31.	<i>Peltophorumpterocarpu m</i>	Fabaceae	Leaves	Methanol	Pylorus Ligation and Indomethacin induced Model.	[38]
32.	<i>Musa paradisiaca</i>	Musaceae	Skin and tepal	Methanol	Pylorus ligation and indomethacin.	[39]
33.	<i>Celastruspaniculatus</i>	Celastraceae	Seed oil	-	Pylorus ligation and indomethacin.	[40]
34.	<i>Stachytarphetaurticifolia</i>	Verbenaceae	Leaves	Methanol [99%]	Aspirin-induced gastric ulcers.	[41]

### Conclusion

This article encompasses a list of the plants and their parts recorded for the treatment of peptic ulcers. It opens a new arena for the researchers to conduct additional studies on pure plant-derived isolated compounds or novel lead compounds that may lead to ulcer treatment.

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### Conflict of Interest

The authors have declared no conflict of interest.

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