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Review Article

In-Vitro Screening of Antiulcer Potencial of Spathodea Campanulata P. BEAUV

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ABSTRACT

Spathodea campanulata, commonly known as the African Tulip Tree, has demonstrated a variety of therapeutic properties in traditional medicine, including potential antiulcer effects.This study explores the use of Spathodea campanulata in the formulation of an antiulcer gel, evaluating its efficacy and safety in treating gastric ulcers. The plant's bioactive compounds, particularly flavonoids, alkaloids, and phenolic compounds, are believed to contribute to its anti-inflammatory, antioxidant, and healing properties, which may help in reducing ulcer formation and promoting mucosal repair. In vitro experiments were conducted to assess Spathodea Campanulata's ability to prevent ulcer development .Peptic disorders, such as gastro intestinal reflux, gastritis, and peptic ulcers, are common due to stress and improper diet. Non-steroidal anti-inflammatory drugs (NSAIDs) are used to treat these disorders, butthey can cause severe side effects. A study evaluated the anti-ulcer activity of the ethanolic extract of Spathodea campanulata leaves by doing in vitro tests. The extract showed anti-ulcer activity against aspirin-induced gastric ulcers, with preliminary phytochemical screening revealing carbohydrates, glycosides, alkaloids, flavonoids, phenols, tannins, and saponin. The study validates the extract's anti- ulcer use in Indian folk medicine, but further research is needed to isolate specific phytochemicals and understand their mechanisms of action.

INTRODUCTION

Gastrointestinal disorders are the most common issue in the modern world. Peptic ulcer is also known as acid peptic disease (APD), an ulceration of the mucous membrane of the stomach and duodenum. Anulcer is asoreor erosionthat forms when the lining of the digestive system is corroded by acidic digestive juices and thus extremely painful. Maintaining the lesion once it forms is the work of hydrochloric acid and pepsin. Peptic ulceration occurs only in areas which are bathed

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by the acidic gastric juice. Therefore, the term peptic ulcer refers to ulceration of the areas which might be acted upon by acid peptic juice namely the stomach and the first portion of duodenum.

Gastri culcer

Gastric ulcer affects a consider number of people worldwide and in the united states, approximately 50,000 persons are affected by gastric ulcer each year.

Duodenal ulcer

Most frequent in the individuals of age group 30 to 55 years. Nowadays people are subjected to increase in stress due to the modern life style and they often consume fast foods. These factors lead to many kinds of gastro intestinal disorders. About 10%of the population may develop peptic ulcer in their life time.

Peptic ulcer

disease en compassing gastric ulcer and are induced by several factors, including stress, smoking, nutritional deficiencies and ingestion of non-steroidal anti-inflammatory drugs. The free radicals seems to play an important role in ulcerative and erosive lesions of the gastro intestinal tract, as they attack and damage many biological molecules. So treatment with antioxidants can decrease ethanol induced gastric mucosal damage.

Causes of peptic ulcer:

H pylori infection: This bacterial infection damges mucus which protects the stomach lining.

NSAID'S: Some painkillers and fever medicines can damage mucus lining.

Alcohol: Excesseive consumption can weaken and damage the stomach lining.

Drugs use in peptic ulcer:

H2 receptor antagonist-Cimetidine, Famotidine, Ranitidine

Proton pump inhibitors-Omeprazole, Pantoprazole, Rabeprazole

Anti cholinergics-Pirenzepine,Telenzepine

Prostaglandin analogue-Misoprostol

Antacids-Sodium Bicarbonate, Al/Mghydroxide

Ulcer protective-Sucralfate, Colloidal Bismuth Subcitrate

Anti-H. pylori-Amoxicillin, Clarithromycin, Metronidazole

Herbal formulations over synthetic formulations:

Synthetic drugs can cause side effects such as constipation, diarrhea, and nausea, as well as aluminum toxicity, blackening of the tongue, teeth, and stools due to bismuth chelates. Alternative therapies, particularly those made from medicinal plants, have gained interest due to their potential to treat various diseases. Plant extracts have shown promising results in treating peptic ulcers, particularly those with antioxidant capabilities. Medicinal plants have therapeutic properties due to their ability to provide renewable and secondary metabolites called phytochemical constituents, which act as protection mechanisms against pathogens. Pharmaceutical companies are developing new antimicrobial medicines derived from medicinal plants, but synthetic antibiotics remain dominant. Higher education and legislation on herbal therapy are crucial for randomized trials to evaluate the effectiveness and safety of these products. Randomised studies to assess the efficacy and safety of Ayurvedic knowledge and modern medicine depend on preferred antiulcer medications with minimal side effects from herbal treatment.

Role of herbal plant intreatment of pepticulcer:

Flavonoids and phenolic compound:

Flavonoids and phenolic chemicals compounds protect the gastrointestinal mucosa, acting as antihistaminic, antihistaminic, and protective against various necrotic agents. They inhibit H. pylori growth and enhance mucosal non protein SH compounds, which are beneficial in peptic

ulcers. Drug release is a major area of pharmaceutical research, with sustained release bi-layer floating tablets offering stability, gastric retention, bioavailability, and patient compliance. This method is particularly useful for herbal medicine, providing larger stability to formulations.

MATERIALS AND METHODS

Spathodea campanulata P. Beauv leaves was collected from local garden. The plant was identified and authenticated by Mrs., Department of Botany.Radhabai Kale Mahila Mahavidhyalaya, Ahilyanagar. A voucher Specimen has been deposited at the museum of the college. The Leaves were dried in shade at room temperature. The dried Leaves were coarse powdered and Soaked extracted successively with 70% ethanol (70o C), 2 to 3 days at room temperature. The extracts were soaked under the conical flask & filter the material to get extracted (bath temperature 50°C) and stored in airtight container. The ethanolic extract was selected for the present study.

PLANT PROFILE

Plant Nmane	Spathodea Campanulata
Kingdome	Plantae
Class	Magnoliopsida
Division	Plantae
Familiy	Bignoniaeace
Genus	Spathodea
Species	S. campanulata P. Beauv.

- **Geographical source**: African forest
- **Comman Name:**

Marathi	Pichkari
Hindi	Rugtoora
English	African tulip tree, Flame Tree

- **Chemical Constituent:**
  - Alkoloids
  - Flavonoids
  - Saponins
  - Glycosides
  - Tannins

Fig: Spathodea campanulata P. Beauv.

Fig: Flower Of S. campanulata

Fig: Stem Of S.Campanulata

Fig: Leaves of S. Campanulata

CONCLUSION

The crude extracts so obtained after the maceration process ethanoloic extraxt. The yield of S. campanulata extracts was 4.3 %w/w. The extract showed the presence of carbohydrates, glycosides, alkaloids, flavonoids, phenols & tannins, saponin. We find all necessary chemical constituent in spathodea campanulata P. Beauv. so it can be used as antiulcer potencial.

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