



# **iJRASET**

International Journal For Research in  
Applied Science and Engineering Technology



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# **INTERNATIONAL JOURNAL FOR RESEARCH**

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

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**Volume: 13    Issue: IV    Month of publication: April 2025**

**DOI: <https://doi.org/10.22214/ijraset.2025.69356>**

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# A Review: Polyherbal Antacid

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**Abstract:** A chemical called an antacid is used to treat heartburn, indigestion, and upset stomach by neutralizing stomach acidity. Compared to single-herb formulations, polyherbal antacids have gained popularity because of their recognized safety and potential synergistic effects. Herbal medicine is an alternative medical practice that uses natural plants and their extracts to heal illnesses. A medical condition known as acidity is brought on by an excess of acid production. The gastric glands in the stomach create this acid. It results in symptoms like dyspepsia, stomach ulcers, heartburn, and gastric inflammation. An imbalance between the stomach's and the proximal intestine's acid-secreting mechanisms causes acidity, a worldwide problem. Relief is provided by polyherbal antacids. Many people experience problems in their lives as a result of acidity. The many polyherbal antacids used to treat gastric acidity are covered in this review article. The usage of polyherbal antacid is widespread worldwide. Herbal medicine uses natural plants and their extract to treat a variety of ailments instead of using prescription drugs. The purpose of this work is to assert that the polyherbal antacid formulations can be used as a substitute for the antacid formulations that are currently on the market. Numerous polyherbal formulations for treating stomach acidity are included in this study, together with information on their therapeutic potential, safety, efficacy, and preclinical and clinical results.

**Keywords:** Acidity, Antacid, gastric acidity, stomach glands, antacid formulations, herbal, better than conventional, safety and efficacy, global issue.

## I. INTRODUCTION

The stomach's production of acid breaks down food during digestion. Anger, stomach lining heartburn, gastrointestinal distress, and discomfort are all brought on by the stomach's overproduction of acid. The pH of stomach acid ranges from 1.5 to 3.5. Digestive enzymes that are readily triggered by stomach acid can break down long-chain amino acids. Pharmaceutical formulations known as polyherbal antacid dosage forms are intended to neutralize excess stomach acid and relieve the symptoms of heartburn and acidity. They usually include a blend of herbal substances with antacid qualities that have been carefully chosen and prepared to effectively relieve gastric discomfort. By combining several herbs, these formulations seek to improve their effectiveness through synergistic effects, providing a comprehensive approach to digestive health. Because of their natural constituents and perceived safety, polyherbal dosages are becoming more and more popular as an alternative to traditional antacids. Antacids work by neutralizing stomach acid and preventing the proteolytic enzyme pepsin from working. The unique pharmacological characteristics of each of these combinations dictate their therapeutic application. The following are some therapeutic uses for antacids. Treating of heartburn in GERD [1-2].

## II. COMMON ACIDITY SYMPTOM

Heartburn, stomach bloating, nausea, regurgitation, and sore throat are the most prevalent symptoms of the acidity disease. Additionally, there have been cases of stomach ulcers, inflammation, and indigestion. Some conditions can cause excessive vomiting, difficulty swallowing, and a burning feeling in the stomach and throat. A number of conditions can also cause discomfort in the abdomen and chest. These are the common signs of acidity, and they might change depending on the person's diet. Preventive methods include following the right healthy eating pattern, which includes consuming the right amount of protein, avoiding fizzy drinks, and avoiding meals that are greasy and hot [3].

## III. CAUSES OF ACIDITY

Excessive acid production results in acidity. Sometimes the stomach glands produce more acid than normal to finish the digestion process. The body experiences burning and acidity. The main causes of acidity include stress and obesity, a lack of physical activity, irregular and poor eating patterns, eating hot and greasy food, and leading an unhealthy lifestyle that includes smoking and drinking alcohol, as well as regularly reclining down after eating. Additionally, some drugs, such as aspirin, can make you more acidic [4].

#### IV. TYPES OF ANTACIDS COMMONLY USED

Sodium bicarbonate, calcium carbonate, and aluminium hydroxide are common antacids. These compounds relieve indigestion and heartburn by neutralizing stomach acid.

An antacid that is frequently used to treat heartburn and indigestion is aluminium hydroxide.

Strong antacid calcium carbonate can immediately neutralize stomach acid, but prolonged use can cause calcium overload. Among the other antacids are magnesium carbonate, magnesium trisilicate, and a mixture of magnesium hydroxide and aluminium hydroxide.

There are three types of antacids: complicated, non-systemic, and systemic<sup>[5]</sup>.

#### V. RISK FACTORS OF ACIDITY

Unhealthy lifestyle, use of tobacco and alcohol, and intake of foods high in fat, spice, and oil. Stress and inactivity. Moreover, some contribute to acidity. Because they neutralize acid, antacids provide relief. You can buy certain antacid tablets over-the-counter<sup>[6]</sup>.

#### VI. MEDICATION USED

Neutralization is the process by which an acid and a base react. Antacids function by counteracting the stomach's acid. Its primary function is pain relief from pylorospasms.

The primary purpose of proton pump inhibitors is to reduce gastric acidity. They function by preventing the stomach's acid-producing enzyme from functioning. They are prodrugs that require stomach acid to activate. The first PPIs to receive a license for use were omeprazole, lansoprazole, rabeprazole, esomeprazole, pantoprazole, and dexlansoprazole<sup>[7]</sup>.

#### VII. POLYHERBAL FORMULATION

Formulations containing two or more herbs are referred to as polyherbal formulations. The two pillars of Ayurvedic medicine are the use of multiple drugs and the use of a single medicament. The final formulation is known as a polyherbal formulation. Botanical remedies that combine multiple botanical extracts are seen as more thorough in the Indian traditional medical system. It is also common knowledge that a wide range of Ayurvedic polyherbal medicines are accessible upon request. Several pharmacological, toxicological, and phytochemical standardization procedures are required to produce safe polyherbal formulations. In Asia and Europe, herbal treatments became more and more popular. Between 468 and 377 B.C., the Greeks are known to have learned about it. Around 100 B.C., the Greeks told the Romans about it. When the Roman Empire collapsed in the fifth century, the Islamic world learned about and started applying this technology. By the eleventh century, the Anglo-Saxon civilization was practicing and documenting herbal science. The majority of herbal practices during the Middle Ages were controlled by the church, which also retained the right to cultivate medicinal herbs and create new herbal remedies. Church influence over herbalism persisted even though several medical schools were established in the later Middle Ages<sup>[8]</sup>.

#### VIII. MECHANISM OF ACTION OF ANTACID

Polyherbal antacids work through:

- 1) Acid Neutralization: Herbs with alkaline qualities, such as *Ginosporacordifolia* (giloy) and *Glycyrrhiza glabra* (liquorice)<sup>[10]</sup>, are the mechanism by which polyherbal antacid's function.
- 2) Mucosal Protection: The gastric lining is shielded by a coating of slippery elm and aloe vera<sup>[11]</sup>.
- 3) Anti-inflammatory & Antioxidant Effects: Ginger (*Zingiber officinale*) and turmeric (*Curcuma longa*) both lessen inflammation<sup>[12]</sup>.
- 4) Prokinetic & Digestive Effects: Coriander (*Coriandrum sativum*) and fennel (*Foeniculum vulgare*) improve digestion and lessen bloating<sup>[13]</sup>.

#### IX. COMMON HERBS USED IN POLYHERBAL ANTACID

- 1) Glycyrrhizin, found in liquorice (*Glycyrrhiza glabra*), calms the stomach and aids in healing.
- 2) Aloe Vera: Promotes mucosal healing and lessens stomach irritation<sup>[11]</sup>.
- 3) Vitamin C-rich amla (*Emblica officinalis*) aids in the healing of ulcers.
- 4) Shatavari (*Asparagus racemosus*): This adaptogen and natural antacid<sup>[14]</sup>.
- 5) Turmeric (*Curcuma longa*): antibacterial and anti-inflammatory.
- 6) Ginger (*Zingiber officinale*): Enhances digestion and lessens nausea.

## X. BENEFITS OF POLYHERBAL FORMULATIONS OVER SINGLE HERBS

Polyherbal blends are more beneficial than using a single plant because of their synergistic effects. Both the number of doses and the severity of the adverse effects decreased with the advent of polyherbal combinations. Limiting the amount of medication given at once increases patient convenience. Even while several plants have a lengthy history, their active phytochemical components are rarely enough to have the desired therapeutic effects and are typically only found in trace amounts. Therefore, research has shown that combining these different plants with different potencies may yield better outcomes than using them separately or summing up their different effects. Synergism is the term used to describe this beneficial herbal interaction. The pharmacological effects of the active ingredients in some herbal treatments are negligible when taken alone; they only become apparent when combined with those of other plants <sup>[16]</sup>.

## XI. HERBAL INGREDIENTS

- 1) CUMIN: Jeera, Camino are synonyms Name in science: Cuminum cyminum The Apiaceae family Chemical components: tannin, saponin, protein resin, and alkaloids Advantages of cumin: • Promotes digestion; • Enhances digestive health [17]
- 2) Zingiber is another name for ginger. Zingiber officinale is its scientific name. Zingiberaceae family Chemical components: ginger is composed of 56% carbohydrate and protein, 5% to 8% resinous materials and 0.25 to 3% volatile oil. Ginger's advantages include: • Better digestion [18]
- 3) ASAFOETIDA: Alternatives: Hing Name in science: Devil's dung Apiceae is the family. Chemical components: 67.8% of 100 grams are carbs Advantages of asafetida Treat gastrointestinal discomfort; cure stomach issues [19]
- 4) LIQUORICE: Scientific name: Glycyrrhiza glabra; synonyms: Glycyrrhiza, liquorice root Fabaceae family Chemical components: sucrose, glucose (upto 4%), and glycyrrhizin/glycyrrhiza acid Between 2.5 and 6.5% Advantages of liquorice Enhance the stomach's blood flow; inhibit the body's generation of gastrin to stop ulcers from developing in the first place [20].

## XII. TYPES OF POLYHERBAL ANTACID

Dry, powdered formulations known as churna are frequently ingested by combining them with liquids like water. Syrups (Avaleha): These are easily ingested liquid formulations that are frequently sweetened.

Tablets: For on-the-go relief, these sturdy, portable forms are practical.

Herbal infusions, or kadha, are made by boiling herbs in water and are typically drunk hot.

Other forms: Chewable pills, lozenges, and even certain flavour-specific liquid preparations are other types of polyherbal antacids <sup>[21]</sup>.

## XIII. FORMULATION TECHNIQUES OF POLYHERBAL ANTACID

- 1) Selecting and Extracting Herbs: Select herbs with antacid and anti-ulcer activity, such as Terminalia Chebula, Terminalia bellerica, and Emblica officinalis, which are traditionally used for their antacid qualities. Extraction: To produce concentrated herbal extracts, use suitable extraction techniques, such as maceration with alcohol, followed by filtration and evaporation.
- 2) Making Powder: Manufacturing of Powder: Using a mesh size (e.g., 120#), grind the herbs into a fine powder. Mixing: To guarantee even distribution, mix the powdered herbs and/or extracts in predetermined ratios, frequently with a mortar. Development and Assessment: Making Suspensions: Combine the herbal powder and/or extracts with the appropriate additives and suspending agents to create antacid suspensions.
- 3) Formulation and Evaluation: Suspension Preparation: Combine the herbal extracts and/or powder with the appropriate additives and suspending agents to create antacid suspensions. Tablet/Capsule Formulation: To guarantee stability, bioavailability, and palatability, take into account tablet or capsule formulations that use excipients such as binders, fillers, and disintegrants. Evaluation: To make sure the finished products satisfy quality standards, do quality control tests, such as examining pH, acid neutralizing capacity, and stability.
- 4) Uniformity: Standardization Determine the phytochemical composition or active components of the herbal extracts or powder to standardize them. Quality Control: Use quality control procedures to guarantee the final formulation's purity and consistency.



5) Administration and Dosage Forms:

Dosage Forms: Consider different dosage forms, such as pills, capsules, powders, and suspensions.

Administration: Considering the particular formulation and target group, give precise dosage and administration instructions.

6) Herb-Drug Interactions and Safety:

Safety: Evaluate the possibility of side effects and drug-herb interactions.

Regulation-Related Considerations: Observe the applicable legal requirements for herbal items<sup>[22]</sup>.

#### XIV. EVALUATION PARAMETER

1) Determination of particle size and form

2) The surface area

3) Density Granular density, true density, and bulk density

4) Friability and granule strength

5) Hausner's ratio, flow characteristics, angle of repose, and percentage compressibility index

6) The amount of moisture

#### XV. FUTURE PERSPECTIVE OF STUDY

Growing consumer inclination toward chemical-free, herb-based treatments rather than artificial antacids. Growing knowledge of the negative effects of long-term synthetic drug use. Additionally, additional clinical studies are needed to confirm the safety, effectiveness, and potency of polyherbal antacids. For improved action and efficacy, polyherbal formulations are preferred over single herb formulations.

#### XVI. CONCLUSION

The potential of plant extracts as antacids is the main focus of this investigation. One significant type of over-the-counter medication that are regarded as both safe and efficient are herbal antacids. The created polyherbal antacid exhibits great promise as a natural substitute for prescription antacid drugs. To guarantee long-term safety and effectiveness, future research should place a high priority on standardizing herbal formulations and conducting comprehensive clinical studies.

#### XVII. ACKNOWLEDGEMENT

I would like to express my heartfelt gratitude to my guide and mentor for their constant support, guidance, and valuable suggestions throughout this research. I am also thankful to my institution for providing the necessary resources and a conducive environment. Special thanks to my family and friends for their encouragement and motivation. Without their contributions, this work would not have been possible.

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