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Herbal Effervescent Granules for Treatment of Gastric Irritation: A Review

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ABSTRACT:
The present review paper focuses on the effects of herbal effervescent granules in the treatment of gastric irritations, combining traditional herbal ingredients with modern effervescent technology provides a safer and more effective way to treat discomforts like gastritis, bloating, heartburn. The study emphasizes the potential of herbal effervescent granules as a holistic solution for managing constipation, offering benefits such as alignment with patient preferences for natural remedies, ease of use, and therapeutic effectiveness. However, additional research and clinical trials are needed to confirm the efficacy and safety of these formulations across diverse patient populations.

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INTRODUCTION:

Gastric irritation is a very common issue that affects millions of people globally from children to old age peoples. Some gastric discomfort like gastritis, peptic ulcer, indigestion bloating, etc. The irritation can be caused by excess stomach acid, infection, dietary habits etc. Symptoms may include heartburn, indigestion, nausea or vomiting, bloating. Some of the most common treatments for the irritation are antacids or H2 blockers. Antacid provides temporary relief but if used for a long time it may lead to side effects such as constipation or diarrhoea and H2 blockers supresses acid level in stomach that can cause growth of harmful bacteria [1,2].
There has been a surge in research focused on the therapeutic potential of herbal medicines, which are

effective and has minimal side effects. Herbal effervescent granules provide a dual-action approach: the effervescent base neutralizes stomach acid, while the herbal components provide additional digestive benefits [3].

The primary objective of this study is to analyse the potential of herbal effervescent granule that provides fast relief from various gastric irritations and enhance gastric health. This includes mechanism of action, therapeutic effect of herbal ingredients and effervescent formulation and advantages over conventional treatments.

Types of Gastric Irritation:

Gastric irritation refers to discomfort or inflammation of the stomach lining, it often caused by excessive stomach acid, certain foods, or some medications like NSAID.

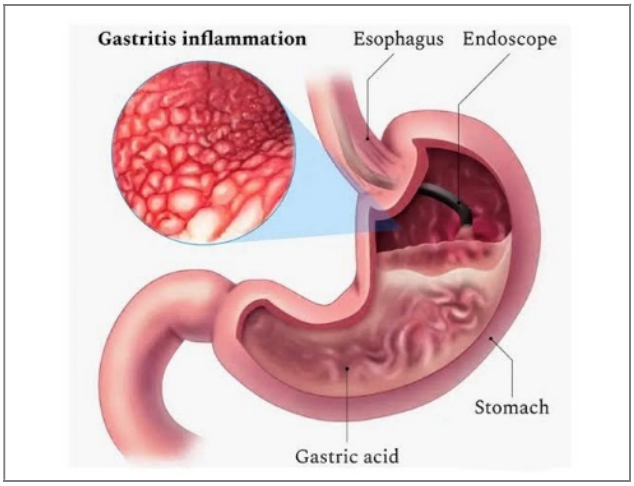

Fig 1. Photo illustrating Gastritis inflammation.

Gastritis:

Gastritis is a condition, which involves inflammation of the stomach lining caused by H. pylori bacteria, excessive alcohol use, prolonged use of nonsteroidal anti-inflammatory drugs (NSAIDs), or stress. The condition damages the stomach mucus layer, which protects the stomach from gastric acid, which leads to inflammation or ulcer formation. Symptoms include indigestion, nausea, vomiting, and bloating [4,5].

Acid Reflux:

It occurs when the stomach acid flows back into the oesophagus, leading to irritation of the oesophageal lining. The sphincter is usually closed to prevent the acid to move upward into oesophagus, if the sphincter becomes weak or relaxes due to reasons like smoking, diet or obesity acid reflux can occur.

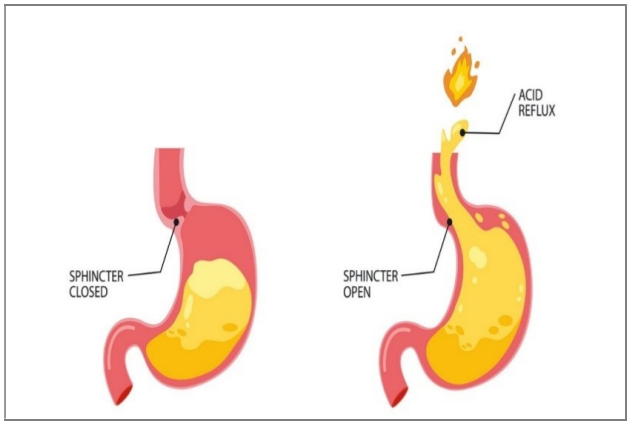

Fig 2. Backflow of stomach acid causing acid reflux.

Common symptoms include heartburn, regurgitation, and difficulty swallowing.[5]

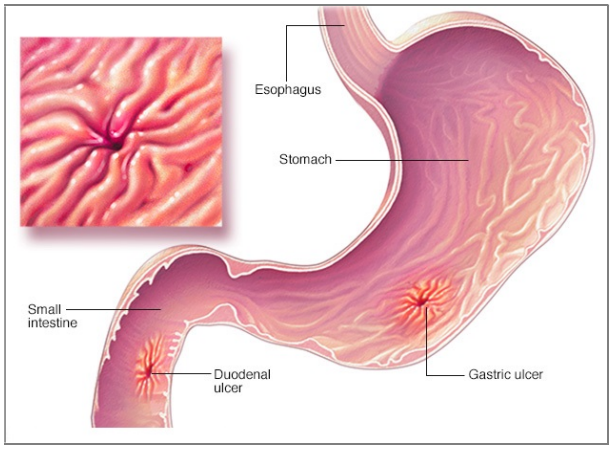

Fig 3. Photo demonstrating ulcers in stomach lining.

Peptic Ulcer Disease:

This is a condition in which ulcers or open sores develop on the lining of the stomach or duodenum, caused by H. pylori infections that damages the mucus layer of stomach or prolonged use of NSAIDs like ibuprofen and aspirin. They cause burning stomach pain, bloating, and indigestion [5,6].

Bloating:

Bloating is a common issue caused by indigestion of food that make gas build up in GIT. It can be caused by diet, constipation, food intolerance [7].

Introduction about herbal ingredients:

Fennel (Foeniculum Vulgare) [8,9]**:**

- Family: *Apiaceae.*
- Biological source: Dried seeds of *Foeniculum vulgare.*
- Chemical constituents: Essential oil of anethole and fenchone, starch, tannis.

- Geological Source: cultivated in China, Egypt and arid semi-arid regions of India.
- Pharmacological Actions: Antioxidant, Carminative, stimulate healthy digestion.

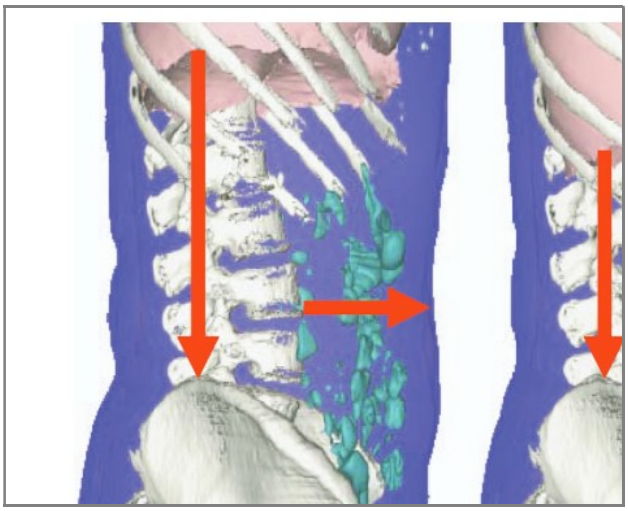

Fig 4. Photo depicting abdominal bloating.

Licorice Root (Glycyrrhiza glabra) [11,16]**:**

- Family: *Fabaceae.*
- Biological source: Roots of *Glicyrrhiza glabra.*
- Geological source: Native to Asia and the Mediterranean region.
- Chemical Constituents: Glycyrrhizin, flavonoids like liquiritin, isoliquiritin and aglycones.
- Pharmacological action: Anti-ulcer, anti-viral, immunostimulatory.

Basil (Ocimum basilicum) [12]**:**

- Family: *Lamiaceae*
- Biological source: Leaves of *Ocimum basilicum.*
- Geological source: Native to Asia, Central America, South Africa.
- Chemical constituents: Flavonoids, Essential oil like tarpnes,
  phenylpropanoids.
- Pharmacological action: Used in treatment of stomach ache, constipation, anti-oxidant, anti-spasmodic.

Amla *(Phyllanthus emblica)* [13]**:**

- Family: *Euphorbiaceae.*
- Biological source: Fruit of *Phyllanthus emblica.*
- Geological source: Native to India and also found in China, Uzbekistan, Pakistan.
- Chemical constituents: Rich in vitamin-c, tannis, alkaloids, phenol, gallic acid.
- Pharmacological action: Used in treatment of diarrhoea, anti-tussive, antioxidant, anti-inflammatory.

Ginger *(Zingiber officinale)* [14,15]**:**

- Family: *Zingiberaceae*
- Biological source: Roots of *Zingiber officinale.*
- Geological source: Widely cultivated in India, Bangladesh, Taiwan, Africa and Caribbean.
- Chemical constituents: Volatile oils like zingiberene, zingiberol, bisapolena.
- Pharmacological action: Effective in nausea, motion sickness, anti-ulcer, anti-inflammatory.

***Mint (Mentha piperita)*:**

- Family: *Lamiaceae*
- Biological source: Leaves of *Mentha piperita*
- Geological source: Cultivated in Asia, Europe, North America.
- Chemical constituents: Flavonoids and phenolic acid, menthol, cardial glycoside.
- Pharmacological action: Antioxidant, antimicrobial, antispasmodic.

Mechanism of Action of herbal ingredients:

Fennel *(Foeniculum vulgare):*

Fennel contains compound like anethole which help in relaxing smooth muscles of GIT and stimulates the secretion of digestive juices, Fennel also contains polyphenol and flavonoids which reduces stress in the stomach lining and also provides protection to the mucus layer of stomach. Fennel essential oils have antibacterial qualities which inhibits bacteria like *H. pylori* which cause ulcer in stomach [17,18].

Amla *(Phyllanthus emblica):*

Amla is rich in vitamin C and gallic acid, tannis, flavonoids help to protect the stomach mucosa and reduce the gastric irritation, they also have antioxidant properties which helps reduce oxidative stress in gastric mucosa [19].

Ginger *(Zingiber officinale):*

Ginger has inflammatory and anti-oxidant effects; ginger inhibits production of cytokinin like IL-6 and IL-1β which causes inflammation. Ginger also enhances mucosal prostaglandin synthesis, which is beneficial for gastric mucosa. Ginger helps totreatGI problems like nausea and vomiting and motion sickness [20].

Table 1. The Marketed product against Gastritis.

Products	Name
	Gas-O-Fast Active Jeera
	Alka-Seltzer Heartburn Relief
	Dr. Vaidya's Herbal Acidity Care
	Sami Direct Magnesium Effervescent Granules

Liquorice Root *(Glycyrrhiza glabra):*

Liquorice root contains glycyrrhizin which has is often used to treat ulcers and gastritis due to its ability to promote mucus secretion to protect the stomach lining. Liquorice root increaseprostaglandin levels, which is important for mucus secretion in, stomach [21].

Mint *(Mentha piperita):*

Mint has a cooling effect on the stomach lining which is effective in condition like gastritis, and it has antispasmodic effect which reduces spasm of intestine that provide relief from stomach discomfort [22,23].

Role of Effervescence [24,25]:

Effervescence occurs due to the combination of sodium bicarbonate and citric acid the reaction produces carbon dioxide when mixed with water. It helps masking the flavour and also enhances patient compliance. Some of it benefits are as follows.

Increased Bioavailability:

The granules dissolve rapidly due to effervescence and lead to faster absorption in GIT.

Patient compliance:

Patients who have trouble swallowing pills of tablets can easily consume the effervescent drink.

Even Distribution:

Effervescence provides an even distribution of active compounds reducing the chance of uneven dose distribution.

Marketed Product:

The marketed product against gastritis is given in Table 1.

CONCLUSION:

Herbal effervescent granules present a promising innovation to treat gastric irritation. Unlike the synthetic antacid it has minimal side effect, herbal ingredients combine with effervescent gives better efficiency. The effervescent granules are easy to use, have enhanced absorption and bioavailability enhances patient compliance. Further clinical studies will improve the effectiveness of the formulation, potentially making it the best solution to treat gastric irritation.

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