IJFANS INTERNATIONAL JOURNAL OF FOOD AND NUTRITIONAL SCIENCES
ISSN PRINT 2319 1775 Online 2320 7876
 UGC CARE Listed (Group -I) Journal Volume 12, Iss 1, 2023

DEVELOPMENT AND ASSESSMENT OF DIVYA PANCHKOL CHURNA FORMULATION

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ABSTRACT:

Background: Indigestion, also known as dyspepsia or an upset stomach, refers to discomfort in the upper abdomen. It encompasses symptoms like belly pain and a feeling of fullness soon after eating, rather than being a specific disease. Indigestion can also signal other digestive disorders. Acidity, or acid reflux, results from excessive stomach acid flowing back into the food pipe, causing pain or a burning sensation in the lower chest area. Herbal churna, composed of natural digestion-enhancing and antacid plant components such as Counch grass, Ajwain, Fennel seeds, Basil seeds, and black salt, is considered safe for use.

Aim: To alleviate indigestion, stomach, and abdominal pain using polyherbal ingredients and promote comfort in the digestive system.

Objectives: The rising demand for plant-based ingredients in commercial products for digestion and acidity reflects increasing consumer preference for perceived safety over traditional synthetic options.

Method: The churna formulation was prepared using traditional methods involving sieving and mixing with a mortar and pestle.

Results: All pre-formulation parameters for the powdered churna met specific yield criteria, and evaluations confirmed its suitability.

Conclusion: This study concludes that the formulated polyherbal churna is effective, economical, and non-toxic compared to existing chemically-based commercial formulations. It helps maintain a healthy environment by addressing acidity and indigestion-related issues. Panchol churna, comprising five polyherbal ingredients, offers relief from various stomach problems.

Keywords:- Panchchol, Churna, Indigestion, Tunch gras, abdominal pain.

Introduction:

Polyherbal churna refers to a finely powdered formulation of drugs in the Ayurvedic system of medicine. Examples include Triphala churna, Trikatu churna, Drakeshadi churna, and Sudarshana churna. Smaller particle sizes enhance absorption rates in the gastrointestinal tract (GIT), thereby increasing bioavailability. Herbal medicines are known for their safety, availability, and minimal side effects [1]. Gastric ulcers affect approximately 60% of adults and 80% of children in tropical regions. Acidity, a common gastrointestinal disorder, leads to heartburn and gas formation in the stomach[2]. Gastroesophageal reflux disease (GERD) involves the movement of gastric acid into the lower esophagus, characterized by a pH of 1 to

2, comprising hydrochloric acid, NaCl, and KCl [3]. Constipation is another prevalent gastrointestinal issue characterized by difficulty in passing stool [4].

Types of Churnas: Churnas are solid dosage forms used internally and are classified into two types:

1. **Simple Churnas:** Containing a single medicinal ingredient.
2. **Compound Churnas:** Containing two or more medicinal ingredients.

Polyherbal Churna: Polyherbal churna, a coarse powder, combines herbs such as Couch grass, Ajwain, Fennel seeds, Basil seeds, and black salt. These ingredients are beneficial in treating hyperacidity, heartburn, indigestion, and constipation [5].

Advantages of Antacid:

1. Antacids are used to alleviate symptoms caused by excessive stomach acid, such as stomach upset, heartburn, and acid indigestion [6].
2. They also relieve symptoms of excess gas, including belching, bloating, and discomfort in the stomach or gut. Simethicone aids in breaking up gas bubbles in the gastrointestinal tract. Aluminum and magnesium antacids act quickly to reduce stomach acid levels [7].
3. Liquid antacids generally work faster and more effectively than tablets or capsules. These medications only neutralize existing stomach acid and do not prevent its production [8].

Objectives of Research Work:

1. To minimize the side effects associated with current antacid and laxative formulations.
2. To develop an effective dosage form that prevents digestive disorders[9].
3. To assess the prepared churna formulation.
4. To promote herbal churna formulations with fewer side effects.

Need for Study: There are several advantages to using herbal products, including reduced side effects, lower cost, easy availability, and simple administration [10]. Recognizing these benefits, there is a necessity to develop herbal products that enhance health while minimizing side effects[11].

MATERIALS AND METHODOLOGY [13, 14]

Sr.No.	Plant (Common name)	Botanical name	family	uses
1	Counch grass	Cynodon dactylon	Grasses	Digestion and constipation
2	Ajwain	Trachyspermum ammi	Apiaceae	Indigestion, bloating, and gas.
3	Fennel seeds	Foeniculum vulgare	Apiaceae	Heartburn, intestinal gas, loss of appetite
4	Basil seeds	Ocimum basilicum	Lamiaceae	Weight Loss. Treat Acidity and Heartburn
5	Black salt	Sodium Chloride	-	cures acidity weight loss,

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Experimental work:-

Formulation table:

Sr. no	Ingredients	F1 (gm)	F2 (gm)	F3 (gm)	F4 (gm)	F5 (gm)
1	Counch grass	5	5	5	5	5
2	Ajwain	1	1.5	1.5	1.5	1.5
3	Fennel seeds	1.5	1	1	1.5	2
4	Basil seeds	1	1	1.5	1.5	1.5
5	Black salt	1.5	1.5	1	0.5	0.5

Evaluation Studies:

1. **Organoleptic Properties:**
   - Visual inspection includes assessing color, odor, taste, texture, and overall appearance[12].
2. **Determination of Total Ash Value:**
   - Accurately weigh 2g of churna (coarse powder) in a previously ignited silica crucible. Ignite the substance at 500-600°C using a muffle furnace until it turns white, indicating absence of carbon. After cooling, calculate the total ash in mg per gram.
   - Formula: Total Ash Value = (Weight of Total Ash / Weight of Crude Drug Taken) × 100
3. **pH Determination:**
   - Take 2g of churna and mix it with 10 mL of distilled water in a beaker. Use pH paper to determine the pH of the solution.
4. **Moisture Content Determination:**
   - Place the churna (coarse powder) in a weighing bottle and dry it in a hot air oven at 105°C for 15 minutes. After stabilizing the weight, calculate the percentage of moisture content.
   - Formula: % Loss on Drying = (Loss in Weight of Sample / Weight of Sample) × 100
5. **Determination of Swelling Index:**
   - Place 1g of the formulation in a stoppered measuring cylinder containing 9 mL of water, and allow it to stand for 24 hours. Measure the swelling observed in the formulation and calculate the swelling index.

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RESULT & DISCUSSION

Sr.No.	Parameter	Observation/Reading
1	Organoleptic properties	Fine, brown color, aromatic and salty.
2	Determination of total ash value	6.2% (w/w)
3	PH determination	7.2
4	Moisture content determination	3.8% (w/w)
5	Determination of swelling index	9.5 mL/g
6	Bulk density	0.54 g/mL
7	Tapped density	0.67 g/mL
8	Carr's index]	18.5%
9	Hausner ratio	1.24
10	Angle of repose	28.6 degrees

CONCLUSION:-

Based on the study, it is concluded that a stable polyherbal churna can be formulated effectively as an antacid for alleviating abdominal pain and indigestion. This formulation shows no side effects or adverse reactions compared to allopathic drugs or existing formulations. By utilizing Ayurvedic (herbal) ingredients, a non-habit-forming antacid dosage form has been successfully developed. Specifically, Divya Panchkol Churna (F4) has met all evaluation criteria satisfactorily and is easy to self-administer.

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