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# "FORMULATION AND EVALUATION OF HERBAL EFFERVESCENT TABLETS OF SHANKH BHASMA"

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**Abstract:** This research was to formulated and evaluate effervescent tablet of Shankh Bhasma extract that would mask the peppery taste of herbal drugs and increase the dissolution, responsible for hastening the onset the action. Citric acid, Sodium bicarbonate and other formulation ingredients were used to formulate effervescent tablet using the wet granulation method. Shankh Bhasma and other API was prepared in four different formulation (F1- F5) and evaluation test for flow properties, pH and effervescence time were carried out. The outcomes demonstrated the formulated tablet have good parameters properties. The effervescent time for all four formulas is under three times. According to the observation, formulation F5 was found be optimized because it has best drug release (97.98 %) and effervescent time of about 55 sec.

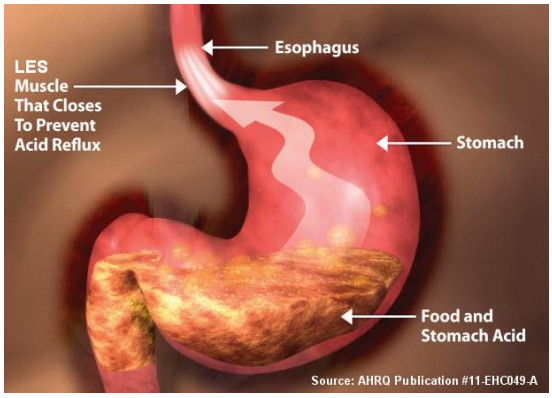
**KEYWORDS:** Stomach acidity, Sodium bicarbonate, citric acid and Gastrointestinal tract.

## Ⅰ. Introduction

Stomach acidity refers to the presence of gastric acid (mainly hydrochloric acid) in the stomach, which aids digestion but can cause discomfort if excessive, Excess stomach acid can lead to issues like heartburn, acid reflux, and ulcers, affecting digestive health and overall comfort.

Reason for acidity:

1. Spicy and oily foods
2. Stress and anxiety
3. Certain Medications
4. Gastrointestinal disorders




**[FIG.1: Stomach acidity]**

**Effervescent Tablet**: - Effervescent tablets dissolve in water, creating a fizzy drink by releasing carbon dioxide. They blend active ingredients like vitamins or medications with an acid (e.g., citric acid) and a base (e.g., sodium bicarbonate). The bubbling dissolves the tablet, perfect for people who dislike swallowing pills. They're convenient and tasty but must be stored carefully to avoid moisture.

### Effervescent Tablet of Shankh Bhasma: -

Shankh Bhasma effervescent tablets offer a natural and effective solution for stomach acid relief. Formulated from purified conch shell ash, a traditional Ayurvedic remedy, these tablets neutralize excess stomach acid, providing quick relief from heartburn, acidity, and indigestion. When dissolved in water, the effervescent action ensures rapid absorption, soothing the stomach lining and promoting digestive comfort. Enriched with herbal extracts like licorice and amla, these tablets also support overall gut health, reduce inflammation, and prevent acid reflux. Gentle yet powerful, Shankh Bhasma effervescent tablets are a convenient, chemical-free choice for managing hyperacidity and maintaining digestive balance.

## Aim and Objective:

**Aim**: formulation and evaluation of herbal effervescing tablet of Shank Bhasma

**Objective:** To formulate effervescent tablets which have following character:

- Fast dissolving property.
- High solubility and stability.
- Rapid, Complete and Durable symptomatic relief.
- Easy to administer.

- The shank Bhasma is use as stomach acid relief in study and articles.

- As they have significant biochemical compound that help to produce effective dosage form.

- Amla, ajwain, fennel and black salt help to provide relief in GIT problems like stomach gas, peptic ulcer, and digestion problem, and also give antacid properties.

# II. PLANT PROFILE AND INGRIDIENTS

### 1) Shankh Bhasma

**Biological name:** Macrostrombus costatus
**Family:** Marine fastropod

[Fig.2: Shankh Bhasma]

**Benefits***:*

- It helps with conditions like acidity, indigestion, diarrhea, and irritable bowel syndrome.
- It also improves appetite and digestion.
- Being a natural source of calcium, it supports healthy bones, teeth, and cell membranes.

### 2) Fennel seeds:

**Biological name:** Foeniculum vulgare
**Family:** Apiaceae family

[Fig.3: Fennel seeds]

**Benefits:**

- They help neutralize stomach acidity and provide relief from heartburn and indigestion.
- Fennel boost metabolism and act as a natural appetite suppressant, aiding in weight loss.

### 3) Amla:

**Biological name:** Phyllanthus emblica
**Family:** phyllanthaceae

[Fig. 4: amla]

**Benefits:**

- Amla stimulates digestive enzymes, promoting efficient food breakdown and enhancing nutrient absorption.
- It helps regulate bowel movements, supporting a healthy gut and reducing issues like constipation.
- Amla reduces acidity by maintaining stomach pH balance and soothing the digestive tract lining.
- Its anti-inflammatory properties support overall gut health, preventing irritation and discomfort.

**4) Ajwain:**

**Biological name:** Trachyspermum ammi
**Family:** Apiaceae

**[Fig. 5: Ajwain]**

- **Benefits:**
- Amla stimulates digestive enzymes, promoting efficient food breakdown and enhancing nutrient absorption.
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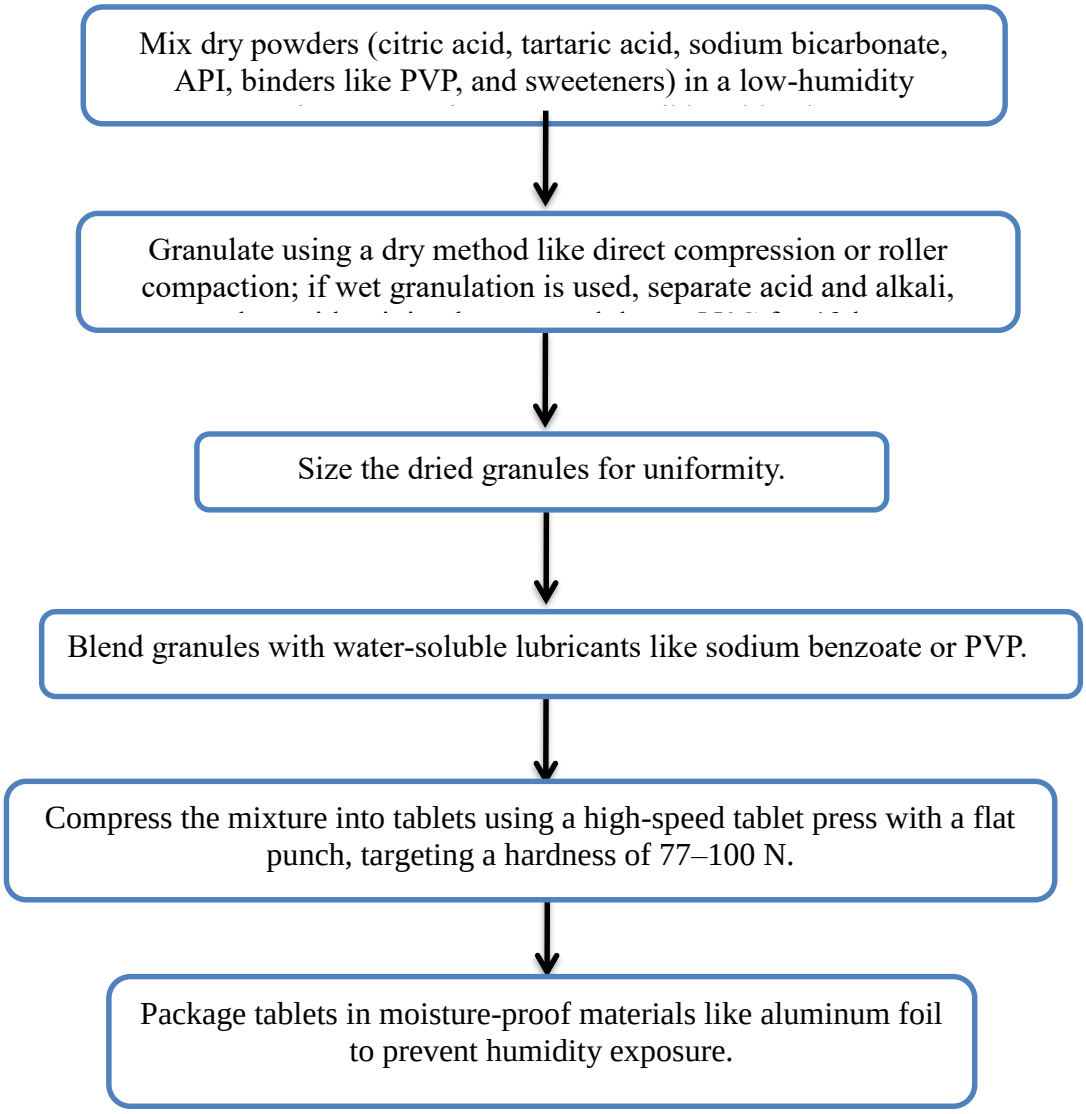
- Its anti-inflammatory properties support overall gut health, preventing irritation and discomfort.

## III. METHOD OF PREPARATION

**1)Collection Preparation:**

Shankh Bhasma wase collected from a store of Patanjali in local market of Ahmadabad, Blake salt, fennel, ajwain and amla collected in local market of Godhra.

**2)Preparation of herbal Effervescent tablet:**




## IV. Formula for Herbal Effervescent tablet

| Sr.no | Ingredient | Batch 1 | Batch 2 | Batch 3 | Batch 4 | Batch 5 |
|---|---|---|---|---|---|---|
| 1 | Shank Bhasma | 250 mg | 250mg | 270mg | 270mg | 300mg |
| 2 | Ajwain | 150mg | 200mg | 150mg | 200mg | 180mg |
| 3 | Amla | 60mg | 60mg | 30mg | 60mg | 60mg |
| 4 | Fennel | 30mg | 40mg | 40mg | 30mg | 30mg |
| 5 | Black salt | 40mg | 30mg | 50mg | 40mg | 30mg |
| 6 | Sodium bicarbonate | 1500mg | 1500mg | 1100mg | 1100mg | 1500mg |

| | | | | | | |
|---|---|---|---|---|---|---|
| 7 | Citric acid | 1100mg | 1100mg | 900mg | 1000mg | 1100mg |
| 8 | PVP (Polyvinylpyrrolidone) | 30mg | 30mg | 30mg | 50mg | 30mg |
| 9 | Sodium starch Glycolate | 60mg | 30mg | 30mg | 50mg | 60mg |
| 10 | Orang flavor | 10mg | 10mg | 5mg | 5mg | 10mg |
| 11 | Magnesium stearate | 30mg | 30mg | 30mg | 30mg | 30mg |
| 12 | Talcum | 60mg | 60mg | 60mg | 60mg | 60mg |
| 13 | Sodium benzoate | 6mg | 6mg | 6mg | 6mg | 6mg |

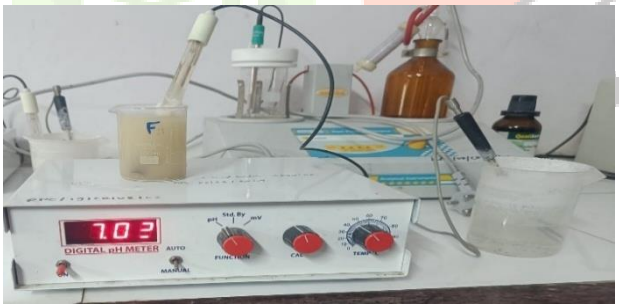
## V. EVALUATION PARAMETERS

**1. Physical and organoleptic properties**:

- Colour: white
- Odor: aromatic and pungent
- Texture: solid
- Size: 0.9 cm
- Thickness: 0.4
- Teste: orange flavour

**2. pH Test:**

- pH of 1% aqueous solution of the formulation was measured by using pH meter at constant temperature.




**[Fig. 6: pH]**

**3: Hardness Test:**

- Compression testing measures a tablet's hardness by applying force until it fractures, ensuring durability during storage, transport, and handling. Tablets are placed between a fixed and moving jaw in a testing device, where gradual pressure is applied to determine the breaking point, recorded in units like kilopond or newtons. Common tools for this test include the Monsanto and Strong-Cobb testers.

[Fig. 7: Monsanto hardness tester]

**4. Weight variation:**

- The weight variation test ensures uniformity in tablet dosage by verifying that each tablet contains the correct amount of active pharmaceutical ingredient (API). It involves weighing 20 tablets individually, calculating the average weight, and checking if any tablet deviates beyond acceptable limits (±5% to ±10%). If more than two tablets fall outside these limits, the batch fails the test. This procedure helps maintain consistent drug potency and ensures patient safety by preventing dosage inconsistencies. Pharmaceutical manufacturers rely on this test to meet quality control standards and regulatory requirements.

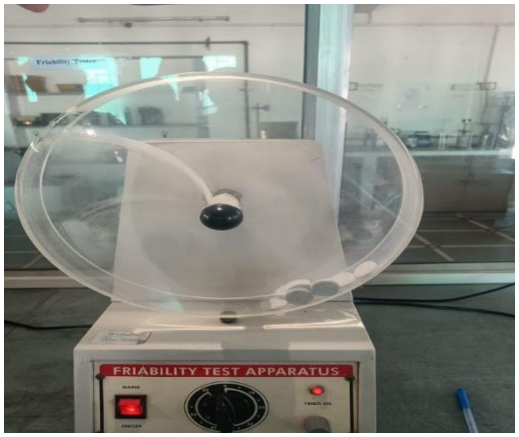
**5. Dissolution test:**

- Dissolution test is a procedure used in the pharmaceutical industry to measure how a drug dissolves in a liquid medium, typically simulating conditions in the human body. It helps assess the rate and extent of drug release from solid dosage forms like tablets and capsules, ensuring consistent quality and bioavailability.

[Fig. 8: dissolution of tablet]

**6. Friability test:**

- The friability test assesses a tablet's durability by measuring weight loss after tumbling in a rotating drum for 100 revolutions at 25 ± 1 rpm. Afterward, tablets are weighed, and weight loss should not exceed 1%. This ensures the tablets can withstand handling, packaging, and transport without damage.




**[Fig. 9: Friability test]**

**7. Moisture content determination:**

- The Loss on Drying (LOD) method determines moisture content by measuring weight loss after drying. A known weight of a tablet sample is dried at a specific temperature (often 105°C) for a set time, and the weight difference before and after drying is used to calculate moisture content. This simple and widely used method ensures the quality and stability of pharmaceutical product.

**[Fig. 10: loss on drying]**

**8. Measurement of $CO_2$ content:**

- The measurement of CO2 content in effervescent tablets is crucial for assessing their formulation quality. One method involves using a modified Chittick apparatus, which quantifies the amount of CO released based on gas pressure and gravimetric changes. Another approach includes ideal gas equation calculations to determine the CO2 content.

## VI. RESULT

| Sr. No | Evaluation Parameter | Observed Value |
|---|---|---|
| 1 | Shape | Round |
| 2 | Thickness | 0.4 cm |
| 3 | Weight variation | 7% |
| 4 | Hardness test | 9 kg |
| 5 | pH | 7.02 |
| 6 | Dissolution time | 52 sec |
| 7 | Friability Test | 0.7 gm |

| | | |
|---|---|---|
| 8 | Moisture content determination | 0.06% |
| 9 | $CO_2$ content | 563.8 mg |

## VII. DISCUSSION

A Formulated Herbal effervescing tablet containing Shankh Bhasma, ajwain, fennel, amla and black salt was successfully developed using a process. The formulation was subjected to various evaluations, include Colour, Odour, teste, PH, dissolution, hardness, moisture content, friability and Wt. variation which yielded acceptable results. Herbal formulations are more acceptable in the belief that they are safer with fewer side effects than synthetic ones.

## VIII. CONCLUSION

- This research highlights the potential of herbal effervescent tablets formulated with **Shankh Bhasma, ajwain, amla, black salt, and fennel**, offering a natural and effective solution for managing acidity and digestive discomfort. These ingredients not only aid digestion but also possess anti-inflammatory, antioxidant, and immune-boosting properties. The study reinforces the efficacy of traditional herbal remedies in treating fever and digestive issues, making them suitable for individuals across all age groups, including children and the elderly.

- Shankh Bhasma and other API was prepared in different formulation (F1-F5) and evaluation test for flow properties, pH and effervescing time were carried out. The outcomes demonstrated the formulated tablet have good parameters properties. The effervescent time for all four formulas is under three times. According to the observation, formulation F5 was found be optimized because it has best drug release (97.98 %) and effervescent time of about 55 sec. As consumer awareness about natural healing grows, the demand for herbal formulations is increasing globally. Beyond their medicinal benefits, herbs have been valued for their **flavouring and aromatic properties** for centuries, reflecting their deep-rooted significance in both therapeutic and culinary traditions.

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