INTERNATIONAL JOURNAL OF PHARMACEUTICAL SCIENCES
[ISSN: 0975-4725; CODEN(USA): IJPS00]
Journal Homepage: https://www.ijpsjournal.com

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Research Article

Formulation And Evaluation of Antitussive Tablet of Ginger

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ARTICLE INFO

Published: 06 Jun. 2025
Keywords:
Ginger, Zingiber officinale, Antitussive, Compression Tablet
DOI:
10.5281/zenodo.15605468

ABSTRACT

Zingiber officinal, species of the ginger family Zingiberaceae has a long history of medicinal use for more than 2000 years as one of the most versatile medicinal plants having a wide spectrum of biological activity and a common condiment for various foods and beverages. Currently, there is a renewed interest in ginger, and several scientific investigations aimed at isolation, identification of active constituents , scientific verification of its pharmacological actions for treatment of several diseases and conditions. Solid Dosage Forms are popular as case of administration, accurate dosage, sold Medication pain avoidance and most important the patient compliance. In the present study, an attempt has been made to formulate tablet of using such as Gingerol, magnesium stearate, Starch, purified talc, used as Antitussive agent. The prepared tablet was evaluated for Hardness, weight variation, Studied . %). In the present research work, the chewable tablets of ginger were prepared by wet granulation. Compression tablets was done by Karnavati lab scale tablet compression machine. The pre-compression parameters assessed for the granules produced include angle of repose, bulk and tapped density, Carr's index, Housner's ratio. Compressed tablets were evaluated for thickness, Hardness .[1].

INTRODUCTION

Traditionally, Z. officinale is used in Ayurveda, Siddha, Chinese, Arabian, Africans, Caribbean and many other medicinal systems to cure a variety of diseases such as nausea, vomiting, asthma, cough, palpitation, inflammation, dyspepsia, loss of appetite, constipation, indigestion and pain. [2)]

The English botanist William Roscoe (1753-1831) gave the plant the name Zingiber officinale in an 1807 publication. At least 115 constituents in fresh and dried ginger varieties have been identified by a variety of analytical processes. Z. officinale is reported to possess essential oils, phenolic compounds, flavonoids, carbohydrates, proteins, alkaloids, glycosides, saponins, steroids,

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Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

terpenoids and tannin as the major phytochemical groups. [3)]

Anti-emetic, renoprotective, neuroprotective, anthelmintic, gastroprotective, Cardiovascular etc activities. The most important drug delivery route is undoubtedly the oral route.[4)]

Tablet is the most popular among all dosage forms existing today because of its convenience of self administration, compactness and easy manufacturing. Many patients find it difficult to swallow tablets and hard gelatin capsules and do not take their medication as prescribed. The difficulty is experienced in particular by pediatric and geriatric patients, but it also applies to people who are ill in bed and to those active working patients who are busy or traveling, especially those who have no access to water. The available literature suggests that chewable tablets provides a safe, well-tolerated alternative to Zingiber officinale, species of the ginger family Zingiberaceae has a long history of medicinal use for more than 2000 years as one of the most versatile medicinal plants having a wide spectrum of biological activity and a common condiment for various foods and beverages. Currently, there is a renewed interest in ginger, and several scientific investigations aimed at isolation, identification of active constituents, scientific verification of its pharmacological actions for treatment of several diseases and conditions.[5)]

Therapeutic Effects:

1.Antioxidant Effect:

In rats, ginger consumption reduces lipid peroxidation and restores the activities of superoxide dismutase and catalase, glutathione, and glutathione reductase, and glutathione peroxidase glutathione-S-transferase .

2. Anti-Nausea Effect :

Throughout history, ginger is commonly utilized for relieving nausea and vomiting. It is also an antiemetic; it is attributed as a carminative effect that helps break up and expel intestinal gas. Researchers compared the effective Throughout history, ginger is commonly utilized for relieving nausea and vomiting.

3 . Anti-Inflammatory Effects :

In ancient herbs used to support the body's immune response, ginger has the capacity to reduce inflammation, swelling, and discomfort. Ginger and its derivatives are used in many countries to boost the immune system. Several studies that evaluate the effectiveness of ginger in patients suffering from osteoarthritis have controversial results.

4. Cardiovascular Effect :

Ginger's antiarrhythmic activity is one of its most significant effects. The studies show the effect of ginger on blood lipids in both animals and humans. The results show that ginger significantly decreases plasma cholesterol in animals, but not in patients who are suffering from any heart disease such as coronary artery disease

5. Anti Cancer Effect :

Ginger act as a chemo-preventive spice, numerous researches focused on the ginger and its various bioactive compound have cancer-preventive and potential cancer therapeutic Effect .[6)]

Figure No 1 : Ginger Rhizome

Kingdom: Plantae
Family: Zingiberaceae
Class : Liliopsida
Genus: Z. Offinale
Species: Zingiber officinale

Ginger is flowering plant whose rhizome, ginger root or ginger, is widely uses as a spice and folk medicine. It is herbaceous perennial which grows annual pseudo stems about one meter tall, bearing narrow leaf blades. [7)]

Objectives

- ❖ To formulate an oral dosage form .
- ❖ To prepare tablets with patients acceptance.
- ❖ To formulate the tablets with rapid action and higher bioavailability.
- ❖ Formulation of dosage form which have no adverse effect.
- ❖ To understand quality, safety and efficacy of tablet in treatment.

Preparation Method -

Wet granulation method was used to prepared the tablets .

• Tablet each containing 500 mg were prepared as per composition given in Table 1.
• The formulation was done by the wet granulation method
• Wet granulation method weigh all drug and excipient accurately are mix well and water was adding in sufficient amount
• Mix it well
• The prepared dump mass were passed through sieve no 14 to ensure the better mixing.
• Prepared granules are dried at hot air oven at 65 c.
• The dried powder was compressed using the tablet punching machine equipped with round punch.
• A minimum of 20 tablets was prepared for each batch. [8)]

Table No 1 . Amount Of API and Excipients

Sr. No	Chemicals	Amount (Per Tablet)
1 .	Ginger	130 mg
2.	starch	50 mg
3	Honey	100 mg
4	CMC	30 mg
5	Talc	30 mg
6	Magnesium Stearate	54 mg

Evaluation :

INGREDIENTS	F (1) (Mg)	F (2) (Mg)	F (3) (Mg)	F (4) (Mg)
Gingerol	120	126	130	122
CMC	30	30	30	30
Magnesium stearate	50	52	54	50
Honey	100	100	100	104
Talc	30	30	30	30
Starch	50	50	50	50

Pre-compression Parameters:

Sr. No	Parameter	Observation Of Formulation Tablet	Observation Of Marketed Tablet
1.	Colour	Yellowish Brown	Light Green
2.	Odour	Pungent	Characteristics
3.	Shape	Rectangular	Round
4.	Taste	Bitter	Bitter
5.	Diameter (Length)	2.0	2.0
6.	Diameter (Width)	0.5	0.5

Angle of Repose: Angle of repose was determined using funnel method. The blend was poured through funnel can be raised vertically until a maximum cone height (h) was obtained.

Radius of the up was measured and angle of repose was calculated using the formula: $\theta=\tan^{-1}(h/r)$ Where ,

θ is the angle of repose,

h is height,

r is radius.

Flow Property	Angle Of Repose
Passable	35.75 %

Formulation	Angle Of Repose
F1	32.21
F2	27.40
F3	35.70
F4	34. 10

Bulk Density:

Apparent bulk density (pb) was determined by pouring the blend into a graduated cylinder. The bulk volume (ρb) and weight of powder (M) was determined.

The bulk density was calculated using the formula,

$\rho b = M/Vb$

Formulation	Bulk Density
F1	0.5
F2	0.47
F3	0.48
F4	0.46

Friability:

Friability of Tablet Was Determined By using a Roche friabilator by taking two tablets from each batch and accurately weighed and placed in the friabilator then operated for 100 revolutions.

Percentage friability was calculated using following formula:

Friability =W1−W2× W1 .100

Formulation	Friability %
F1	0.52%
F2	0.31 %

Dissolution

In vitro Dissolution studies for all the fabricated tablets was carried out by using USP
Type II apparatus (USP XXIII Dissolution Test Apparatus) at 50 rmp in 900 ml of phosphate buffer pH maintained at 37±0.5°C. 5 ml aliquot filter paper and assayed spectrophotometrically at 239am using 1700 Spectrophotometer. [9)]

Disintegration :

The disintegration time for all formulations was carried out using tablet disintegration test apparatus. Six tablets were placed individually in each tube of disintegration test apparatus .[10)]

Formulation	Disintegration Time
F1	10 min
F2	11 min
F3	8 min
F4	6 min

Formulation	Average Wt. (g)	Diameter (cm)	Thickness (cm)	Hardness (kg/cm)	Friability (%)	Disintegration Time (sec)
F1	0.453g	1.1 cm	0.3cm	8kg/cm	0.52%	10 min
F2	0.446g	1.1 cm	0.3cm	9kg/cm	0.31%	11 min
F3	0.428g	1 cm	0.3 cm	6kg/cm	0.14%	8 min
F4	0.44g	1.1 cm	0.4 cm	10kg/cm	0.11%	6 min

CONCLUSION:

Ginger is well known as a condiment and spices used for flavoring food and also its use as a therapeutic purpose from a thousand years ago. Ginger and its bioactive components include gingerols, shogaol, and paradols are active/valuable ingredients which use as a novel therapeutic strategy against various degenerative diseases. This review appreciated natural products drugs (ginger), have beneficial effects for cardiovascular disorders, diabetes mellitus, and gastrointestinal health, and have anti-inflammatory and antibacterial effects. The application of ginger is safe and promising health benefits in the past as well as the future.
In the present work, Tablets were manufactured successfully. From intensive literature survey we found that, this type of study and this combination of drugs are not taken yet for the study.
Ginger is relatively safe and untoward side effects are rare. Scientific investigations show that the bioactive compounds are beneficial for health. Present data would be used as reference for future work.

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HOW TO CITE: Vaishnavi Raskar*, Tanaya Wackchaure, Formulation and Evaluation of Antitussive Tablet of Ginger, Int. J. of Pharm. Sci., 2025, Vol 3, Issue 6, 1071-1076. https://doi.org/10.5281/zenodo.15605468