# Polyherbal Chewable Tablets: An Innovative Approach to Holistic Health Management

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## ABSTRACT

The growing demand for convenient, effective, and natural healthcare solutions has led to the development of polyherbal chewable tablets. These formulations combine the therapeutic benefits of multiple herbs in a single dosage form that is easy to consume and palatable, making them ideal for both adult and pediatric populations.

This review highlights the process of formulating polyherbal chewable tablets, focusing on key herbal ingredients such as **Amla (Phyllanthus emblica)**, **Tulsi (Ocimum sanctum)**, **Ginger (Zingiber officinale)**, and **Turmeric (Curcuma longa)**, chosen for their antioxidant, anti-inflammatory, and immune-boosting properties. The paper examines formulation techniques, challenges in maintaining taste and stability, and quality control parameters such as hardness, friability, and dissolution.

Additionally, the review evaluates clinical and preclinical studies demonstrating the efficacy of these chewable tablets in promoting overall health and addressing specific conditions like immunity enhancement, digestive support, and antioxidant protection.

This paper underscores the potential of polyherbal chewable tablets as a sustainable and consumer-friendly approach to modern healthcare, bridging the gap between traditional herbal medicine and contemporary pharmaceutical innovations.

**KEYWORDS**-Polyhedral formulations**,** Chewable tablets**,** Herbal medicine**,** Antioxidants

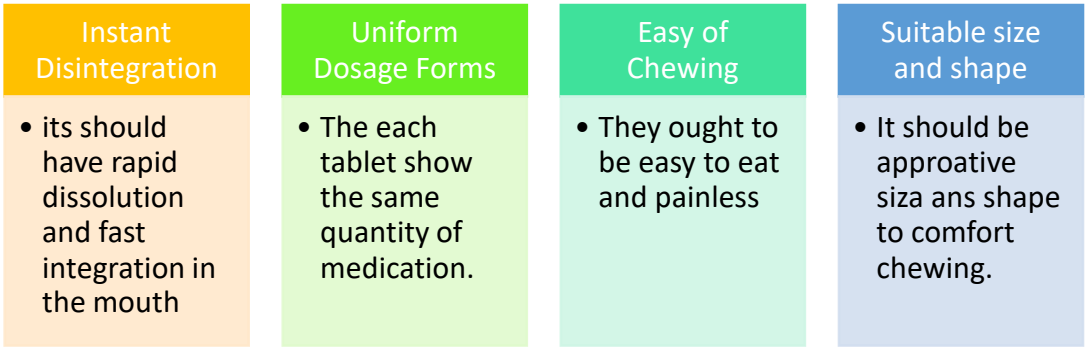
## 1. INTRODUCTION

Numerous polymer-based targeting techniques are being used in the modern age to reduce side effects while enhancing treatment effectiveness. Many types of distinctive delivery systems have emerged in this time, such as vesicle-based carrier systems for drug delivery to target sites, liposome-based delivery and nanoparticular-based micro/nano stage drug delivery. Nevertheless, the formulation developer faced the problem of determining which route to administer the drug from. After conducting a lit. survey, we discovered that there are two potential routes that are optimal for patient compliance: the nasal route and the oral route.

Due to its high patient compliance and variety in dosage form design, the route of ingestion is the most popular way to take medicine. The simplicity of use, accurate dosage, economical manufacturing, and overall longer product shelf life of this approach account for its widespread acceptance. Typical oral medication administration formats include liquids, pills, and capsules. Since solid compositions, like as tablets, don't need sterile production conditions, they are very cost-effective. Chewable tablets are particularly helpful for local as opposed to systemic effects since they ought to break down in the mouth when chewed, releasing their active contents. These tablets are useful to individuals who are unconscious busy, traveling, or do not have a reservoir of water, such as elderly people and children, because they may be taken with little to no water. In order to improve absorption, chewable tablets are usually made via direct compression or wet granulation, which incorporates active components in micronized and micron-sized forms. For chewable pills to have a pleasing Flavour, sweeteners are essential. The food business uses a variety of sweeteners, each with unique benefits and drawbacks, including chemical, natural, and semi-natural sweeteners. Because of its rapid absorption and energy-giving qualities, sucrose, a naturally occurring sugar obtained from sugar maple syrup or beets, is frequently utilized. Regarding of production efficiency, accurate dosage, mobility, and shelf stability, chewable tablets—which are used in medicinal products nutraceutical, and veterinary applications—offer notable advantages over conventional tablets. By dissolving into nanoparticles in the mouth, they also make swallowing simpler.

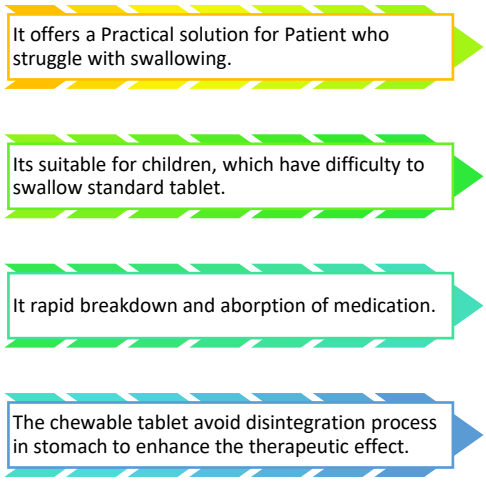
### 1.1 Ideal Characteristics of Chewable Tablets-

A number of features make chewable tablets a desirable option for the administration of medicine. Among the best qualities are:

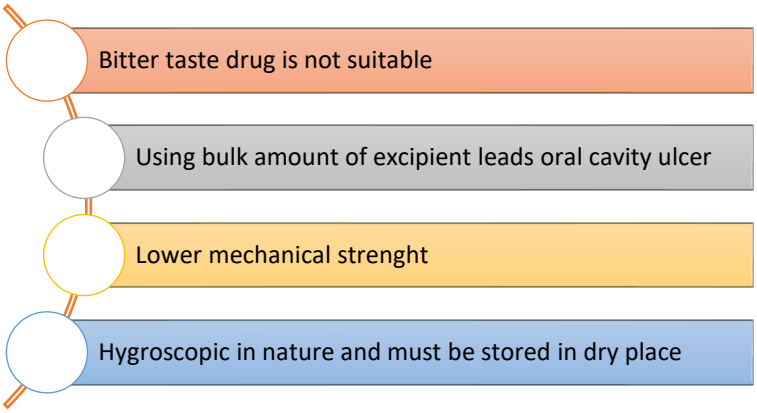


### 1.2 Advantages of Chewable Tablet-

The following advantages of chewable tablets increase their attractiveness as a dose form:

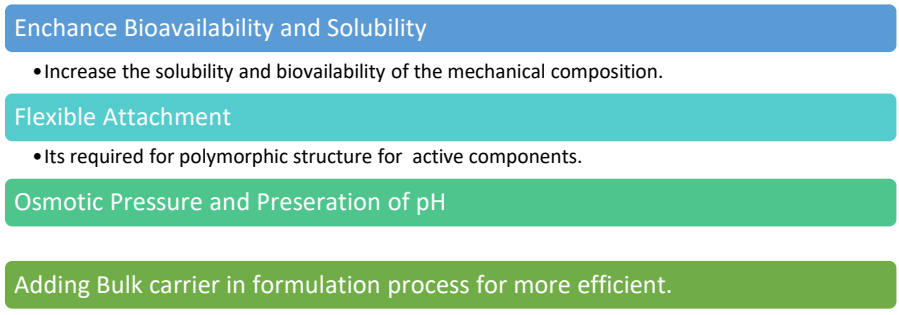



### 1.3 Disadvantages of Chewable Tablet-




### 1.4 Excipients or Material Used-

Accompanying the active pharmaceutical components, or prodrugs, a variety of passive pharmaceutical substances, sometimes referred to as excipients, are essential in the manufacturing of chewable tablets. There are several reasons why these excipients are necessary.




**Super disintegrants-**

Depending on the choice and addition of suitable substances that disintegrate, fast-dissolving tablets made using the approach of direct compression show different rates of disintegration and dissolution. To improve the decomposition of fast-dissolving tablets, additional preservatives such effervescent agents as well as easily soluble in water additives are used in addition to super disintegrants.

### 1.5 Method of Manufacturing-

There are several ways to produce chewable tablets, and each is appropriate for a particular formulation need and level of production capacity:

➢ **Non-Aqueous Granulation (Dry Granulation):**

This technique works well with substances that are sensitive to moisture since it creates granules without the need of a liquid solution.

➢ **Aqueous Granulation (Wet Granulation):**

By forming granules with a liquid binder, this technique enhances the powder mixture's compressibility and flow characteristics.

➢ **Direct Compression:**

This procedure is simple and effective since it compresses the powdered materials straight into tablets without first granulating them.

❖ **Granulation: -**

The process of granulation creates bigger, multi-particulate entities called granules by adhering initial powder particles together. The normal size range of these medicinal granules is 0.2 to 4.0 mm. Granulation is mostly used to improve powders' compressibility and flow characteristics as well as to stop blend components from separating. Granulation is generally achieved using two primary methods.

- **Dry Granulation**

A sophisticated technique for the semi-automatic granule manufacture that may be used for a variety of solid dose pharmaceutical products is dry granulation. This method offers faster development and higher quality than conventional solid pharmaceutical form development and production technologies. Dry granulation involves compressing the powder combination without the use of solvents or heat. Dry granulation is accomplished in two main ways. The slugging is the most often used technique, in which the powder is crushed into big tablets called "slugs" and subsequently ground into granules.

- **Wet Granulation**

The most used technique for granule generation in pharmaceutical manufacture is wet granulation. This procedure entails wet sizing, drying, and combining the powder mixture with a granulating liquid. A volatile solvent that is environmentally friendly and can be readily eliminated during drying, which might include the aforementioned ethanol or isopropyl alcohol, is usually included in the granulating liquid. Conventional wet granulation creates wet pellets that are then dried by forcing the wet bulk through screen.

- **Direct Compression**

Because of its ease of use and effectiveness, simple compression is the recommended technique for producing tablets. When materials can be mixed directly without the need of solvents or wetting agents, this approach works very well. Because it protects the active pharmaceutical components (APIs) from heat and moisture exposure during processing, it is perfect for APIs that are sensitive to these conditions and improves API stability. This is a simple and effective manufacturing technique that involves mixing APIs with lubricants and excipients, then compressing the mixture to create tablets.

❖ **Evaluation Parameters for Chewable Tablets-**

To guarantee quality and efficacy, a number of assessment criteria must be taken into account while creating chewable tablets:

**A. In-Process Organoleptic Evaluation**

As explained below, organoleptic examination is carried out at many points throughout the creation of chewable tablets:

- **Unflavoured Baseline Formulation Evaluation:**

Comparing various vehicles, vehicle dimensions, or other formulation parameters with the coated medication present is the task of this stage.

- **Evaluation of Flavoured Baseline Formulation:**

To find the most palatable Flavour, this entails contrasting several flavoured compositions.

- **Coated Drug Evaluation:**

This entails evaluating various coating techniques and comparing the coated medicine to the pure drug.

- **Final Selection and Product Acceptance Test:**

Against make sure the best decision is chosen; this phase involves comparing the finished formulations against one another or to competing goods.

**B. Chemical Evaluation**

To guarantee the effectiveness and quality of chewable pills, chemical examination is necessary. It consists of the following:

- **Assay of Drug Content: -**

Establishes how much active pharmaceutical ingredient (API) is present in the tablet.

- **Dosage Uniformity: -**

Guarantees a constant dosage of the API in every pill.

- **In Vitro and In Vivo Evaluation: -**

The tablet's performance was evaluated by both in vitro (in the lab) and in vivo (in live things) tests.

**C. Physical Evaluation**

The physical attributes and functionality of the tablet are the main emphasis of the physical evaluation. It consists of the following:

- **Hardness:**

Evaluates the tablet's capacity to tolerate handling stress and pressure resistance.

- **Disintegration:**

Evaluates how long it takes for the pill to dissolve in the body and form smaller particles.

- **Tablet Physical Appearance:**

Evaluation of the tablet's appearance, including its colour, shape, and feel.

- **Friability:**

Determines how likely it is that the tablet will break or crumble when subjected to mechanical force.

- **Dissolution:**

Quantifies the amount and speed at which the application programming interface is delivered into a solution from the tablet.

### 1.6 Application of Chewable Tablets

Chewable tablets can be used for a variety of specialist treatments as well as global and local therapies:

- **Local Therapy:**

Chewable tablets provide a sustained local impact because they can release active ingredients at a regulated pace over time. Examples include fluoride (for tooth health), both benzocaine (for pain relief in the mouth treatment), and chlorhexidine (for use as an oral antiseptic).

- **Pain Relief:**

Chewable tablets provide quick absorption of therapeutic amounts for the efficient treatment of headaches, nausea, symptoms associated with the cold, and muscle aches. Chewable pills that facilitate buccal absorption can have a quick beginning of action and lower the possibility of gastrointestinal adverse effects. Examples include aspirin (for pain and fever reduction), ibuprofen (for anti-inflammatory properties and pain relief), and ibuprofen (for discomfort and pain relief).

- **Systemic Therapy:**

When the active ingredient penetrates through the buccal mucosa, hewable tablets are beneficial for systemic medication administration. Examples include propranolol (for cardiovascular disorders), vitamin C (for immunological support), and caffeine (for stimulant effects).

- **Obesity Management:**

There are several chewable forms with chromium, guarana, or caffeine. It has been demonstrated that the centrally stimulating anorectic effects of caffeine and guarana raise metabolic rates. Examples include guarana (as a stimulating), caffeine (to speed up metabolism), and the picolinate of (for controlling blood sugar and promoting weight reduction).

- **Smoking Cessation:**

Clinical trials have examined nicotine, lobeline, and chrome acetate-containing chewable formulations as smoking cessation aids. Examples include Silver Acetate (to induce an aversion to smoking), Lobeline (as an alternative nicotine alternative), and nicotine (in different forms for quitting smoking).

## CONCLUSION

Chewable tablets are a flexible and efficient dose form that may be used for a variety of therapeutic purposes, including systemic and local therapies as well as specialty treatments like managing obesity and quitting smoking. Many patients, especially those who have trouble swallowing regular tablets or capsules, prefer chewable tablets due to their simplicity of administration, enhanced patient compliance, and quick beginning of action. Choosing the right excipients and substances that disintegrate, as well as manufacturing techniques including granulation with water, dry granulation of cells and direct compression, are all important considerations in the creation of chewable tablets. Every one of these approaches has benefits and drawbacks that affect the ultimate quality and functionality of the tablet.

Chemical and physical evaluation characteristics are essential for guaranteeing the effectiveness, security, and acceptance of chewable pills. To provide a high-quality product, parameters such drug content testing, dose consistency, tablet hardness, friability, breakdown and dissolution are carefully evaluated. Additionally, the addition of APIs, or active pharmaceutical components, designed for certain therapeutic uses emphasizes the versatility and

promise of chewable tablets. Furthermore, specific formulations for managing obesity and quitting smoking show how chewable tablets may be used to address a wide range of health issues.

In conclusion, chewable tablets' importance in contemporary medicine is highlighted by their thorough analysis and creative composition. Chewable tablets will continue to be a useful and versatile dose form as patient preference and treatment needs change, improving patient satisfaction and health outcomes.

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