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Research Article

Formulation And Evaluation Of Nutraceutical Tablet

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ABSTRACT

This study uses the wet granulation process to formulate and assess a Nutraceutical tablet by Herbs containing Orange peel, Tulsi, Cinnamon, Liquorice, Mint, and Ginger. The goal of the Study is to evaluate the quality and qualities of the tablet using a variety of factors, such as Thickness, hardness, weight variation, and friability. These strong herbs are used in the tablet's Formulation because of their nutritional and therapeutic qualities. The contents are efficiently Processed into a tablet form that may be consumed using wet granulation. Analysing the Tablet's properties offers valuable information about its physical characteristics, which are Essential for guaranteeing both its efficacy and user acceptability. The research findings offer Potential benefits for dietary supplementing and health by advancing our understanding of the Formulation process and quality assessment of Nutraceutical tablet by herbs.

INTRODUCTION

Nutrition, or the science of food and its effects on health, is critical to human health and illness prevention. The importance of healthy diet in preserving good health and vigour has been recognised since antiquity. In modern culture, with the rise of chronic diseases and lifestyle-related

health concerns, the importance of a balanced diet rich in key nutrients is more obvious than ever.

The use of herbal supplements for health promotion and dietary supplementation has gained popularity in recent years due to its purported therapeutic benefits and low negative

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effects. Orange Peel, Tulsi (Holy Basil), Cinnamon, Liquorice, Mint, and Ginger are among the many Herbal treatments that are highly valued for their nutritional value and therapeutic qualities. Numerous civilizations have historically held these plants in high regard due to their wide Range of health-promoting qualities, which include immune-stimulating, digestive, and Antioxidant capabilities. Research on the formulation and assessment of herbal products, especially those in tablet Form for easy consumption, has increased dramatically in response to the growing demand for Natural health remedies. Combining several herbal constituents into a single multi nutrition Tablet offers a promising opportunity to improve general health and wellbeing. The goal of This study is to investigate the preparation and assessment of a Nutraceutical tablet that Contains ginger, mint, Orange Peel, tulsi, cinnamon, and liquorice. These botanicals have Been turned into a cohesive tablet form using the reliable wet granulation procedure, which Guarantees the end product's potency and homogeneity. The thorough evaluation of numerous factors that are essential to the effectiveness and Quality of the herbal tablet is at the heart of this inquiry. The physical characteristics of a Tablet, such as its weight variation, hardness, thickness, and friability, are crucial indications That impact its effectiveness, stability, and consumer acceptance. This study intends to Contribute to the developing field of herbal medicine and nutraceuticals by delving into the Formulation process and evaluating the tablet's quality standards. The findings of this study Hold promise for developing the development of Nutraceuticals supplements that provide a Natural and holistic approach to health maintenance and illness prevention. The idea of using Food for health benefits beyond its nutritional value is gaining popularity in both the public And scientific communities. Nutraceuticals are natural

compounds that provide health benefits To the body.

MATERIALS AND METHODS:

Herbs used :

- Orange Peel.
- Tulsi leaves
- Mint leaves
- Liquorice roots
- Cinnamon
- Ginger

Chemicals used:

- Starch soluble
- Lactose
- Magnesium stearate

Apparatus:

- Weighing scale
- Blender
- Standard sieve
- Petri dish

PREPARATION :

- 1. Take 185mg Orange Peel Powder**



Fig 1 : orange peel powder

- 2. Cinnamon powder 30mg**



Fig 2 : Cinnamon powder

3. Ginger powder 25mg



Fig 3 : Ginger powder

4. Liquorice powder 30mg



Fig 4: Liquorice powder

5. Tulsi powder 90mg



Fig 5 : Tulsi powder

6. Mint powder 5mg.



Fig 6: Mint powder 5mg.

- Mix these all powder in given quantity.
- Add 100mg Lactose.
- Add 40 mg Starch.
- Add 5mg magnesium stearate.
- This mixture powder was blended and mixed well.
- The mixture was converted into granules by wet granulation method.



Fig 7 : granules

- The granules were evaluated for pre evaluation parameters like tapped density, bulk Density, Hausner's ratio, angle of repose and compressibility index (Carr's index).
- Nutraceutical tablet by herbss were prepared by compression method using single Punch tablet press machine.
- Faint/light brown tablets were obtained and the post evaluation parameters were
- Performed for the formulation that i.e. Weight variation test, hardness test, friability Testing.

Evaluation of pre-compressional blend:

Angle of repose:

The angle of repose was measured using the fixed funnel method. The fixed Funnel method involves securing a funnel with its tip at a specific height (h) above graph Paper set on a level horizontal platform. Granules were gently transferred through the funnel Until the apex of the conical pile touched the funnel tip.

$$\tan \theta = h/r.$$

In this equation, r represents the radius of the conical pile's base, while θ represents the angle Of repose.

Bulk density:

The bulk density is defined as the granule's bulk mass divided by its bulk Volume. And it is denoted by ρ_b . The bulk density is used to determine the homogeneity of the sample to be found. Bulk density (ρ_b) equals M/V_b . Where M is the sample's mass, and V_b is the bulk volume.

Tapped density:

The tapped density is the weight of the granules divided by the minimum Volume of the measurement cylinder. To determine the volume of a powder bed, a graduated Cylinder containing a known mass of medicine or formulation is placed on a mechanical Tapper equipment and operated at a given number of taps (100) until the minimum volume is Reached. Tapped density (ρ_t) is the weight of the powder blend divided by the minimum volume of the Cylinder.

Carr's index:

The powder mixture's % compressibility was calculated using a formula based On its apparent bulk density and tapped density.

$$\text{Carr's index} = \frac{\text{Tapped density} - \text{Bulk density}}{\text{Tapped Density}} \times 100$$

Hausner's ratio:

Lower Hausner's ratio (<1.25) indicates better flow qualities compared to Higher ratios (>1.25).

10 It is determined by the formula. (Aulton ME 2002; Lachman L, 2009).

$$\text{Hausner's ratio} = \frac{\text{tap density}}{\text{bulk density}}$$

Evaluation parameters of tablets:

Weight variation:

Twenty tablets were selected at random from the formulation. Tablets were weighed individually, and the average weight was computed. The variation of each tablet from the average weight was calculated, followed by the percentage deviation.

Hardness tester:

The hardness was being evaluated by using hardness tester.

Friability test:

Friability tests are performed using a Friability apparatus. Weighted tablets are placed in an instrument and rotated at 25 rpm for 5 minutes. After an interval, tablets are removed from the equipment and weighed again. The friability is calculated using the provided formula.

CONCLUSION

This study investigated the formulation and evaluation of a multi nutrition herbal tablet Containing Amla, Tulsi, Cinnamon, Licorice, Mint, and Ginger utilising the wet granulation Process. To assess the tablet's quality and appropriateness, critical factors such as weight Variation, hardness, thickness, and friability were carefully measured and analysed. Furthermore, the wet granulation method has proven to be effective in manufacturing Homogeneous and stable herbal tablets, ensuring the end product's uniformity and



potency. This robust formulation approach has implications for the pharmaceutical and nutraceutical Industries, allowing for the generation of high-quality herbal formulations with improved Bioavailability and efficacy

Examining the pharmacological properties of the tablets, including their anti-inflammatory, Antibacterial, antioxidant, and immunomodulatory actions, may offer further therapeutic Advantages and aid in the creation of nutraceuticals or functional foods.

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