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Formulation and Evaluation of Mouth Dissolving Ayurvedic Rasmola Digestive Tablet

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Abstract

Rasmola, a chewable tablet, is designed to support digestive health, addressing the growing concerns of indigestion and gastrointestinal discomfort in modern lifestyles. Combining the wisdom of Ayurveda with contemporary needs, it incorporates a blend of natural ingredients such as Amla, Ginger, Black Salt, and Cumin. These ingredients are carefully processed to ensure optimal digestive benefits. The tablet formulation involves precise drying, grinding, and mixing, followed by compression into tablets, with optional coating for taste and shelf-life enhancement. Evaluation tests including weight variation, friability, hardness, and disintegration confirm that Rasmola tablets maintain high consistency, quality, and efficacy, making them a reliable natural remedy for digestive health.

Introduction

Rasmola is a chewable tablet and here In a world where fastpaced lifestyles and irregular eating habits are commonplace, digestive issues have become a frequent concern. To address these challenges, we introduce Rasmola, a flavourful and effective solution designed to support and enhance digestive health. Rasmola is not just another digestive aid; it is a delightful tablet that combines the rich traditions of Ayurveda with modern dietary needs, offering a natural remedy for indigestion, bloating, and related gastrointestinal discomforts.

Rasmola draws its strength from a meticulously chosen blend of natural ingredients renowned for their digestive benefits. Each tablet is crafted using a combination of Amla (Indian Gooseberry), Ginger, Black Salt, and Cumin, ingredients that have been celebrated in Ayurvedic medicine for their ability to promote digestive wellness. These components work together to stimulate the digestive enzymes, ease digestion, and provide relief from common digestive problems.

Materials and method

Piper longam, Zingiber officinale, Cuminum cyminum, Piper nigrum, Piper longum, Sendha Namak, Kala Namak, Nimbu Saar, Sharkara, Dhaniya, and Amrood leaves were purchased from local market.

Formulation of tablet (Shinde PK et al., 2023)

Drying and Grinding: Key ingredients like Amla, Cumin, Black Pepper, Ginger, Long Pepper, Ajwain, and Tamarind are dried and ground into fine powders. This process is essential to ensure the ingredients are in a suitable form for mixing and compression.

Homogeneous Blend: All powdered ingredients, including spices, salts, and sugar, are carefully mixed to form a homogeneous blend. The mixing process ensures even distribution of flavors and active components throughout the formulation.

Adding Flavours: Black Salt, Rock Salt, Citric Acid, and Mango Powder are added to the

mixture to enhance the taste and provide digestive benefits. Asafoetida and Cardamom are included to impart their distinctive flavours and additional digestive properties.

Incorporating Menthol and Ammonium Chloride: These ingredients are added to provide a cooling effect and enhance the overall flavour profile of the tablet.

Tablet Formation: The final blend is compressed into tablets using a tablet press. This step ensures that each tablet contains a consistent amount of the active ingredients and flavours.

Optional Coating: The tablets may be coated to improve their shelf life and taste. Coating can also make the tablets more visually appealing and easier to consume.

Table 1:

S. No.	Ingredients	LRRS1124	DRRS1024	GRRS0924	CRRS0824
1	Pippali(Piper longam)	142.110 mg	142.110 mg	142.110 mg	142.110 mg
2	Sunthi (Zingiber officinale)	13.500 mg	13.500 mg	13.500 mg	13.500 mg
3	Maricha (piper nigrum)	17.200 mg	17.200 mg	17.200 mg	17.200 mg
4	Nimbu saar (citrus limon)	54.500 mg	54.500 mg	54.500 mg	54.500 mg
5	Shveta jirak (Cuminum,Cyminum)	49.000 mg	49.000 mg	49.000 mg	49.000 mg
6	Souvarchala lavana (Sodium sulphide)	50.000 mg	50.000 mg	50.000 mg	50.000 mg
7	Guava leaf (Psidii guajavee folium)	140.000 mg		140.000 mg	
8	Dhaniya fruite (Coriandrum sativum)	110.000 mg	110.000 mg		
9	Samudra lavan (sodium chloride)	159.000 mg	159.000 mg	159.000 mg	159.000 mg
10	Sharkara (Sugar)	135.000 mg	135.000 mg	135.000 mg	135.000 mg
11	Clove(Syzygium armaticum)	130.000 mg			130.000 mg
		1005.31mg	730.31mg	760.31mg	755.31mg

Airtight Packaging: The tablets are packaged in airtight containers or blister packs to protect them from moisture and maintain their potency and freshness.

Evaluation of tablet:

1. Weight variation (Fassihi AR et al., 1986)

Sample Selection: Select 20 tablets randomly from the batch.

Weighing: Weigh each tablet individually using an analytical balance.

Calculate Average Weight: Determine the average weight of the 20 tablets.

Compare Individual Weights:

For each tablet, compare its weight to the average weight.

Check if any tablet deviates by more than the allowed percentage (usually ±5% for tablets > 324 mg, ±10% for tablets ≤ 324 mg).

Accept/Reject:

If more than 2 tablets exceed the allowed variation, the batch fails the test.

If not, the batch passes.

2. Friability (Seitz JA et al., 1965)

Sample Selection: Select 20 tablets randomly from the batch.

Weighing: Record the initial weight of the tablets.

Testing: Place tablets in the friability tester (e.g., Roche Friabilator) and rotate at 25 rpm for 4 minutes.

Weighing After Test: After the test, remove the tablets, brush off any loose dust, and weigh them again.

Calculate Loss: Calculate the percentage weight loss:

Weight loss (%)=
Initial weight−Final weight/Initial weight×100

Accept/Reject: If the weight loss is more than 1%, the batch fails the test.

3. **Hardness** (Blanco M et al., 2006)

Sample Selection: Select a minimum of 6 tablets randomly from the batch.

Testing: Use a hardness tester to apply pressure to each tablet until it breaks.

Record Results: Note the force (in kilograms or Newtons) required to break each tablet.

Evaluate: Calculate the average hardness of the tablets.

Accept/Reject: Ensure that the hardness is within the specified range for the formulation.

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4. **Disintegrating time (**Abdelbary G et al., 2005)

Sample Selection: Select 6 tablets randomly from the batch.

Testing Setup: Place tablets in the disintegration apparatus, with each tablet in a separate tube.

Conditions: Immerse the tablets in the test medium (usually water or simulated gastric fluid) at 37°C, and agitate according to the USP or relevant pharmacopoeia.

Disintegration: Start the apparatus and monitor the time it takes for each tablet to completely disintegrate.

Evaluate: Record the time at which each tablet disintegrates. The batch passes if all tablets disintegrate within the specified time limit.

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Results and discussion:

The weight variation results for the four batches show consistent weight measurements for each of the tablet samples tested. Here is a detailed analysis:

1. **Batch LRRS1124:**

Average Weight: 1005.31 mg

The weights of individual tablets are close to the average, with a small variation range (996.96 mg to 1010.03 mg), demonstrating uniformity in tablet weight.

Variation from Average Weight: 955.04 mg to 1055.57 mg, which indicates minor weight differences that are acceptable.

Remark: The batch passes the weight variation test.

2. **Batch DRRS1024:**

Average Weight: 730.31 mg

The tablets also show minimal variation, with the weights ranging from 720 mg to 735.31 mg.

Variation from Average Weight: 693.79 mg to 766.82 mg, confirming that the batch meets acceptable limits for weight variation.

Remark: The batch passes the weight variation test.

3. **Batch GRRS0924:**

Average Weight: 760.31 mg

Weights are similarly consistent, ranging from 750.35 mg to 769.32 mg.

Variation from Average Weight: 722.29 mg to 798.32 mg, which is well within the acceptable limits.

Remark: The batch passes the weight variation test.

4. **Batch CRRS0824:**

Average Weight: 755.31 mg

The tablet weights range from 723.56 mg to 770.32 mg, showing minor variations around the average.

Variation from Average Weight: 717.54 mg to 793.07 mg, which is within the acceptable limits for tablet weight consistency.
Remark: The batch passes the weight variation test.

Table 2:

BATCH NO.	LRRS1124	DRRS1024	GRRS0924	CRRS0824
Weight of 10 Tablet In mg				
Average Weight	1005.31mg	730.31mg	760.31 Mg	755.31mg
1	1004.32	725.31	761.2	753.23
2	1005.5	735.2	755.32	762.31
3	1004.96	731.62	762.3	723.56
4	1000.96	720	760.31	754.96
5	996.96	733.21	766.21	770.32
6	1008.23	730.25	750.35	759.25
7	1010.03	733.64	759.32	755.32
8	1005.62	735.21	757.32	752.34
9	999.62	731.21	760.33	756.35
10	1005.3	735.31	769.32	769.62
Variation -	955.04	693.79	722.29	717.54
From Av Weight +	1055.57	766.82	798.32	793.07
Remark	Pass	Pass	Pass	Pass

All batches exhibit disintegration times within an acceptable range for standard tablets (typically 3-15 minutes, depending on the formulation). The average disintegration time of 3.27 minutes suggests that the tablets disintegrate efficiently, meeting the required pharmacopoeial specifications.

All batches show friability values well below the commonly acceptable limit of 1%. These low friability percentages indicate that the tablets have good mechanical strength and are resistant to breakage and chipping during handling.

All batches show friability values well below the commonly acceptable limit of 1%. These low friability percentages indicate that the tablets have good mechanical strength and are resistant to breakage and chipping during handling.

Table 3:

S.No.	BATCH NO	Disintegrating time (min)	Friability Test (%)n=4	Hardness Test (kg/cm2)
1	LRRS1124	3.2	0.48	3.54
2	DRRS1024	3.35	0.39	3.66
3	GRRS0924	3.1	0.23	3.32
4	CRRS0824	3.45	0.31	3.69
		AVG: 3.27 (min)		

Conclusion

All four batches (LRRS1124, DRRS1024, GRRS0924, CRRS0824) have passed the weight variation test. The variation from the average weight for each batch is within the acceptable range, indicating good tablet uniformity and consistency in manufacturing. The disintegration times for all batches are within the acceptable range, with an average of 3.27 minutes. The friability percentages are low, indicating good tablet integrity, and the hardness values are consistent, meeting the required strength for the tablets. All batches pass the standard quality criteria for disintegration, friability, and hardness.

References

1. Abdelbary G, Eouani C, Prinderre P, Joachim J, Reynier JP, Piccerelle PH. Determination of the in vitro disintegration profile of rapidly disintegrating tablets and correlation with oral disintegration. International journal of pharmaceutics. 2005 Mar 23;292(1-2):29-41.
2. Blanco M, Alcalá M, González JM, Torras E. A process analytical technology approach based on near infrared spectroscopy: tablet hardness, content uniformity, and dissolution test measurements of intact tablets. Journal of pharmaceutical sciences. 2006 Oct;95(10):2137-44.
3. Fassihi AR, Kanfer I. Effect of compressibility and powder flow properties on tablet weight variation. Drug Development and Industrial Pharmacy. 1986 Jan 1;12(11-13):1947-66.
4. Seitz JA, Flessland GM. Evaluation of the physical properties of compressed tablets I: Tablet hardness and friability. Journal of pharmaceutical sciences. 1965 Sep 1;54(9):1353-7.
5. Shinde PK, Kokate RH, Gawade GS. Physicochemical, phytochemical, biological and chromatographic evaluation of Polyalthia longifolia plant leaves-A review. Research Journal of Science and Technology. 2023;15(1):41-8.