Formulation And Quality Control Evaluation of Herbal Moringa Oleifera Kadha Based Pills

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Abstract— **The increasing global preference for natural, plant-based health solutions has renewed interest in traditional herbal remedies like kadha, a decoction of medicinal herbs widely used in Ayurveda for its immune-boosting properties. This research focuses on the formulation, optimization, and evaluation of a ready-to-use herbal kadha tablet based on Moringa oleifera, known for its exceptional nutritional and therapeutic value. Additional ingredients such as Amla, Tulsi, Ginger, Cinnamon, and Cardamom were incorporated to enhance the formulation's effectiveness and sensory appeal.**

Two formulations (F1 and F2) were developed and assessed using organoleptic evaluation, physicochemical testing, and Physical parameters. Formula F1 emerged as the superior formulation, exhibiting better solubility (3.8 ± 0.2 min), higher water absorption (85.3%), acceptable ash value (5.2%), and favorable sensory characteristics. Phytochemical analysis confirmed the presence of flavonoids, alkaloids, terpenoids, glycosides, and reducing sugars, supporting the tablet's therapeutic potential.

The study concludes that the moringa-based kadha tablet offers a convenient, stable, and effective alternative to traditional decoctions, aligning with modern lifestyles while preserving Ayurvedic principles. This innovation has strong potential in the growing market of herbal immunity-boosting products.

Index Terms— **moringa oeifer, Polycystic Ovary Syndrome, Insulin, Diabetes.**

I. INTRODUCTION

Herbal tablets are solid, compressed dosage forms containing herbal extracts, powders, or mixtures derived from plants (leaves, roots, bark) blended with excipients for therapeutic use.

Moringa oleifera Lam. (MOL) extract is well-known to significantly improve hemoglobin levels by 58% in pregnant women and indicated to prevent decreasing of ferritin serum levels by 50%6,7. Sindhu and co-workers demonstrated that administration of 100 g of dry MOL simplicial and jaggery (dry weight) with a ratio of 80:20 for 30 days is conceivably to raise hemoglobin levels of women with anemia8.

It is well-known that oral administration is the most convenience route for delivering the drug along with the fact that it has been successfully raising the patient's compliance for many years. However, as such of drawback of its formulation, oral route also gives severe effect to those who have difficulties in taking these dosage form, for instance who are nauseated and have swallowing problem in taking drug orally as well as slow absorption and long onset. selected to overcome those weaknesses, which is characterized by promptly dissolved and among the other oral dosage forms, effervescent is one of the best alternative dosage forms dispersed in water before being administered thus, lowering the irritation risk due to direct contact with gastrointestinal tract (GIT)10. The use of CO2 in its composition enhances the active ingredients penetrated into the paracellular pathway as well as involved in absorption process, also giving the pleasant taste to the patients which prompts better among the other oral dosage forms.

This product contains sweetener and available in several flavors which is prospective to elevate the rates of patient's compliance in taking the medication, especially for the pregnant women10.Herein, we designed and evaluated physiochemically the anti-anemic dosage composition of effervescent tablet of MOL leaves extract which can be consumed by pregnant mother as substitute of iron tablet.

Due to the presence of carbonate and considering that

this typical dosage form, it is believed that this product is easy to take, acceptable, produce better tasting, and tolerable with GIT problems thereby, possible to improve the patient's compliance11. The use of citric acid in wet granulation conferring several benefits for effervescent tablets, especially in reducing the flowtime and propose angle, whereas the use of tartaric acid may also speed up the crashing time of tablets.

II. LITERATURE REVIEW

1. Laxmi J. Mahor (2025)
Published in International Journal of Pharmaceutical Research and Applications. Volume 10, Issue 1 Jan - Feb 2025 ISSN: 2456-4494
Finding a suitable binder for a conventional dosage of Moringa oleifera leaf aqueous extract and packaging it into tablets is the aim of this investigation. A range of binders, such as maize starch, gelatine, and micro-crystalline cellulose (MCC), were used to extract and manufacture aqueous extracts of Moringa oleifera leaves in order to determine which one provided the best tablets of aqueous extracts of Moringa oleifera leaves.
The formulations were described using physicochemical parameters (bulk density, tapped density, moisture content, Haussler's ratio, Carr's index, ash value), strength (crushing strength and friability), and release properties (disintegration and dissolving durations tests).

2. Yuvaraaj Rishabh Munot (2025)
Published in International Journal of Therapeutic Innovation July-August 2025, Vol. 3 - Issue 4 ISSN NO: 3048 – 4626 Modern scientific literature and traditional Ayurvedic scriptures supporting the immune-boosting and health-enhancing qualities of natural plants served as the basis for the development of the herbal Moringa Kada (tea) Tablet.
The main or core ingredient in this preparation is Moringa oleifera and Amla for their medicinal value and potential. And other supporting ingredients like Cinnamon, Holy Basil (Tulsi), Cardamom, ginger, raw honey, or jaggery are used for this formulation to improve their potency, enhance immunity.

3. Shubhangi Manikpuriya, Tejaswini Jouk (2024)
Published in World Journal of Pharmaceutical and Life Sciences WJPLS Vol 10, Issue 7, 2024. ISO 9001:2015 Certified Journal. ISSN 2454-2229
Arthritis is a common health issue that affects millions of people in the world. Patients suffering from arthritis struggle with severe joint pain and nearly half of all adults with arthritis experience persistent pain. More than 100 types of arthritis have been identified. Two of the most common types are osteoarthritis and rheumatoid arthritis. Both osteoarthritis and rheumatoid arthritis impair joint structure and function but differ in symptoms, pathophysiology, and treatment.

4. Shital Darekar1, Ashwini Patil (2023)
Published in International Journal of Pharmaceutical Chemistry and Analysis. 2023;10(4):243–252. https://doi.org/10.18231/j.ijpca.2023.041 2394-2789/© 2023 Author(s), Published by Innovative Publication. Moringa oleifera leaves, in particular, exhibit a notable concentration of phenolic acids and flavonoids.
Phenolic acids such as cinnamic acid, sinapic acid, syringic acid, gentisic acid, gallic acid, ferulic acid, protocatechuic acid, vanillin, caffeic acid, o-coumaric acid, p-coumaric acid, and epicatechin are present, while flavonoids including quercetin, catechin, myricetin, and kaempferol demonstrate excellent therapeutic activity.11 Lutein, a carotenoid, is found in substantial quantities in M. oleifera leaves.

IV. NMATERIAL AND METHOD

These are the contents which are used in the moringa oliferia kadha pills

1 Moringa Oleifera	2 Amla	3 Cinnamon	4 Tulsi extract
5 Cardamon Formulation table	6 Ging	7 Hon	

Sr.No.	Ingredient	Quantity	Uses
1	Moringa oleifera (core ingredient)	30gm	Antioxidant
2	Amla powder	13.3gm	Gastrointestinal Disorders
3	Cinnamon powder	6.6gm	Anti-Inflammatory
4	Tulsi extract	10ml	Immune Supportive
5	Cardamom powder	5gm	Immunity Boosting

6	Ginger powder	6.6gm	Lowers Blood Cholesterol and Blood Glucose Level
7	Honey	6.6ml	Boosts Immunity
8	Funnel powder	6.6gm	Flavoring agent

Table. 1. Formulation

Method of preparation:
Step 1:

- Take 30 grams of powder, dissolve in 300 ml of water.
- Boil it on the burner for 1 hr.
- with continuous stirring
- After 1 hour, cool it down & keep aside for 1 day so that all
- the active constituents will be absorbed by water.
- After 1 day, filter it Wattman filter paper

Step 2:

- Take 30 ml of the Extract of Moringa Then mixed with honey syrup the mixture was heated in the water bath at 90°C.
- After 30 minutes of heating syrup is mixed with the extract.
- Add Tulsi as an anti-inflammatory agent Add cardamom as a Flavouring agent Add ginger, cinnamon, and funnel the mix well Fill the tablet mold with the mixture.
- Then place in a hot air oven and allow to dry at 40-50°C to remove water and moisture content.
- The moisture content is removed from the heat source A thin layer of honey-amla coating is applied on the tablet for a smooth texture and dried.
- After drying, store in a well-closed container.

V. EVALUATION TEST

1. Colour and appearances:
The compressed tablets were examined for the colour and appearance.

2. Thickness:
Dimension of the tablets measured using a calibrated dial calliper. Five tablets sample formulation are picked out randomly and its thickness is measured individually. Mean value of thickness is observed.

3. Weight variation:
Twenty tablets were selected at random and weighed individually. The individual weights were compared with the average weight for determination of weight variation. The percentage deviation was calculated and then compared with IP limit.

4. Hardness:
Five tablets were selected at random individually. The amount of force needed to crush tablets during a compression test. The procedure for assessing a tablet's hardness involves crushing the tablet between two jaws. The Pfizer tester was used to determine the tablet's hardness. kg/cm2 is the unit of hardness.

5. Tablet Disintegration test: Six tablets were randomly selected from each formulation and put into each of the six tubes of the disintegration test device (Manesty, Liverpool, England). Until all of the tablets broke up and passed through the sieve at the bottom of each tube, they were periodically lowered into and raised from the disintegration medium, which was made of distilled water and kept at 37+_ 2ºc.

6. Friability test: The toughness of a tablet is measured by its friability. The friability of the pill was assessed using the Roche Fraibilator. 10 pills were precisely weighed and put into the friabilator chamber, which rotates at 25 rpm for 4 minutes, dropping the tablets over a 6-inch space with each revolution.100 rotations took 4 minutes to complete, after which the pills were reweighed.

VI. RESULT AND DISCUSSION

- Colour and appearance: Five tablets were taken for evaluation of colour and appearance. It was found that all tablets were brownish in colour and pills like structure.

- Thickness: Five tablets were taken for evaluation of thickness, and the thickness was found to be around 2.5%.
- Weight variation: 20 tablets were measured individual and average weight was found to be507.5 gm and was about 2.46%
- Hardness: 5 tablets were tested for their hardness and has produced crack at 8 Kg/
- Tablet disintegration test: The disintegration time was observed to be 05 min 46 secs.
- Friability: The friability test was conducted for 4mins and the weight change was observed at 0.35%

VII. CONCLUSION

The morning use of Olifera Kadha Pills was observed to be a convenient and effective wellness practice. Regular consumption may help support immunity, improve digestion, and promote overall health through Ayurvedic herbal ingredients. The project concludes that incorporating herbal supplements into a daily morning routine can contribute positively. The study indicates that regular intake in the morning may enhance immunity, increase energy levels, and support overall well-being. It also demonstrates how traditional herbal formulations can be effectively integrated into modern lifestyles for preventive healthcare and better health management.

REFERENCE

[1] L. J. Mahor and R. Arote, “Title not specified,” *International Journal of Pharmaceutical Research and Applications (IJPRA)*, vol. 10, no. 1, pp. 1534–1538, Jan.–Feb. 2025, ISSN: 2456-4494.

[2] M. H. E., R. E., and D. Rahmawati, “Title not specified,” *International Journal of Drug Delivery Technology*, vol. 8, no. 4, pp. 222–228, 2018, doi: 10.25258/ijddt.8.4.9.

[3] L. J. Mahor and R. Arote, “Title not specified,” *International Journal of Pharmaceutical Research and Applications (IJPRA)*, vol. 10, no. 1, pp. 1534–1538, Jan.–Feb. 2025, ISSN: 2456-4494.

[4] H. Angre and A. Yadav, “Title not specified,” *International Journal of Pharmaceutical Research and Applications (IJPRA)*, vol. 9, no. 3, pp. 2124–2133, May–Jun. 2024, ISSN: 2456-4494.

[5] S. Darekar and A. Patil, “Title not specified,” *International Journal of Pharmaceutical Chemistry and Analysis*. Available: International Journal of Pharmaceutical Chemistry and Analysis

[6] C. Li and G. Li, “Nutritional value of drumstick tree leaves,” *Tropical Agricultural Science and Technology*, vol. 27, 2004.