

From Mantha to Modernity: A Review on Kharjuradi Mantha and its Effervescent Formulation

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Abstract—Ayurveda, the ancient science of life, describes numerous traditional preparations aimed at promoting health and vitality. Among them, *Kharjuradi Mantha* is a classical Ayurvedic drink mentioned in traditional texts as a nutritive, restorative, and instantly energizing formulation. Prepared mainly from *Kharjura* (Phoenix dactylifera), *Draksha* (Vitis vinifera), *Madhuka* (Glycyrrhiza glabra), and other rejuvenating ingredients, it serves as an ideal *pathya* (wholesome dietary preparation) for combating fatigue, dehydration, and general debility. The *Mantha Kalpana* involves trituration of ingredients in cold water to retain the potency of heat-sensitive compounds, ensuring better palatability and quick absorption. In modern times, there is a growing need to reformulate traditional preparations for improved stability, convenience, and consumer acceptance. The development of an effervescent formulation of Kharjuradi Mantha represents a significant step toward integrating classical Ayurvedic wisdom with contemporary pharmaceutical technology. Effervescent dosage forms enhance solubility, taste masking, and bioavailability while maintaining the therapeutic efficacy of the original formulation. This review critically explores the classical references, pharmacological properties of ingredients, probable mode of action, and the potential benefits of converting Kharjuradi Mantha into an effervescent form. Such innovation not only preserves the essence of Ayurvedic tradition but also makes it compatible with modern health demands, promoting wider acceptance of Ayurveda in a global context.

Index Terms—Kharjuradi Mantha, Ayurveda, Mantha Kalpana, Effervescent Formulation, Nutraceutical, Rejuvenation, Modernization of Ayurveda, Phoenix dactylifera.

I. INTRODUCTION

Ayurveda, the ancient science of life, offers numerous formulations designed to sustain health, prevent disease, and restore vitality. Among the wide range of Ayurvedic dosage forms described under *Bhaishajya Kalpana*, *Mantha Kalpana* holds a special place as a cooling, nutritive, and easily digestible preparation. It involves the trituration of powdered or soft ingredients with cold water, without heating, thereby preserving delicate phytoconstituents and ensuring rapid absorption and palatability (1).

Kharjuradi Mantha is one such classical preparation referenced in *Sharangadhara Samhita* and other Ayurvedic compendia. It is primarily indicated in *Madatyaya* (alcohol-related disorders), *Daurbalya* (weakness), *Trishna* (thirst), *Oja-ksaya* (depletion of vital energy), and general debility (2,3). The formulation combines ingredients like *Kharjura* (Phoenix dactylifera), *Draksha* (Vitis vinifera), *Amlika* (Tamarindus indica), *Amalaki* (Phyllanthus emblica), *Dadima* (Punica granatum), and *Parushaka* (Flacourtia indica), which are known for their nourishing (*brimhana*), cooling (*sheetala*), and rejuvenating (*rasayana*) properties (4).

In the era of modernization, there is increasing interest in developing user-friendly, stable, and instantly usable herbal formulations. One innovative approach is transforming traditional *Mantha* preparations into effervescent formulations, which dissolve rapidly in water, improving taste, bioavailability, and convenience (5). This paper reviews *Kharjuradi Mantha* from classical to contemporary perspectives and explores the scope of developing its effervescent form while maintaining its Ayurvedic integrity.

Classical Review of *Kharjuradi Mantha*

1. Literary Source

The reference to *Kharjuradi Mantha* is found in *Sharangadhara Samhita*, *Madhyama Khanda*, *Manthakalpana Adhyaya* (3/9–10), where Acharya Sharangadhara describes the preparation as follows:

2. Ingredients and Their Properties (2,4,6)

Ingredient	Botanical Name	Classical Properties (Rasa-Guna-Virya-Vipaka)	Pharmacological Actions
Kharjura	Phoenix dactylifera	Madhura, Guru, Snigdha; Sheeta; Madhura	Nourishing, restorative, relieves thirst, promotes strength
Draksha	Vitis vinifera	Madhura, Snigdha; Sheeta; Madhura	Rejuvenative, anti-oxidant, Pitta pacifying
Amlika	Tamarindus indica	Amla, Madhura, Guru; Ushna; Amla	Digestive, mild laxative, thirst relieving
Amalaki	Phyllanthus emblica	Amla, Kashaya; Laghu, Ruksha; Sheeta; Madhura	Rasayana, antioxidant, rejuvenative
Dadima	Punica granatum	Madhura, Kashaya; Laghu, Snigdha; Ushna; Madhura	Appetizer, Pitta balancing, promotes hemoglobin
Parushaka	Flacourtia indica	Kashaya, Madhura; Laghu, Snigdha; Sheeta; Madhura	Cooling, thirst relieving, anti-diarrheal
Tintidika	Oxalis corniculata or Garcinia indica	Amla; Laghu, Ruksha; Ushna	Digestive, thirst relieving

3. Method of Preparation

All ingredients are taken in equal proportion, deseeded (in the case of *Kharjura* and *Dadima*), and crushed into coarse paste. This paste is mixed with approximately 28 parts of potable cold water, macerated for a few hours, churned (*manthana*), and filtered through clean cloth to obtain the clear *mantha* (3,6).

4. Indications

Kharjuradi Mantha is indicated in:

- *Madatyaya* (alcohol intoxication / withdrawal)
- *Trishna* (excessive thirst)
- *Daurbalya* (weakness)
- *Pittaja vyadhi* (Pitta disorders)
- *Ojakshaya* (loss of vitality)(3,6)

5. Dose and Administration

Classically administered in a dose of *Dvipala* (approximately 96–100 ml) twice daily, preferably after food, with cold water as *anupāna* (vehicle) (3).

“खर्जूर- दाडिम- द्राक्षा- तित्तिडिका- आम्लिका- परुषक- आमलाः समाः।”

— शारङ्गधर संहिता, मध्यखण्ड, ३/९-१०

This indicates equal proportions of the above ingredients. The mixture is pounded and macerated in water to prepare a cooling, refreshing drink known as *Kharjuradi Mantha*.

Pharmacological and Clinical Evidence

Though *Kharjuradi Mantha* is primarily documented in classical texts, modern research has begun exploring its therapeutic potential.

A clinical study conducted by Javeed et al. (2018) evaluated *Kharjuradi Mantha* in 35 patients of *Madatyaya* (alcohol-related disorders). The formulation, administered twice daily for 28 days, showed significant improvement in symptoms such as nausea (*chardi*), anorexia (*aruchi*), fatigue (*tandra*), heaviness (*gaurava*), hiccup (*hikka*), and insomnia (*nidranasha*). The study concluded that *Kharjuradi Mantha* enhances *Ojo guna* and restores vitality by improving digestion, liver function, and hydration (3). Furthermore, its antioxidant, hepatoprotective, and rejuvenating actions can be attributed to its phytochemical constituents: polyphenols, flavonoids, tannins, and vitamin C derived from *Draksha*, *Amalaki*, and *Dadima* (7).

Recent trials registered in the Clinical Trials Registry of India are evaluating *Kharjuradi Mantha* in combination with *Madatyayahara Kashaya* for alcohol use disorder and withdrawal management, reflecting growing scientific interest (8).

Scientific Basis of Ingredients

Modern pharmacological studies support the traditional claims of each component:

- Dates (*Phoenix dactylifera*): Rich in glucose, fructose, and minerals; shown to improve liver function and act as a natural energy booster (9).
- Grapes (*Vitis vinifera*): Contain resveratrol and flavonoids; demonstrate antioxidant and hepatoprotective activity (10).
- Amla (*Phyllanthus emblica*): Strong antioxidant; prevents oxidative stress and enhances immunity (11).
- Pomegranate (*Punica granatum*): Demonstrates cardioprotective and anti-inflammatory effects (12).
- Tamarind (*Tamarindus indica*): Possesses digestive and mild laxative actions; reduces acidity and thirst (13).
- Parushaka (*Flacourtia indica*): Known for anti-pyretic and anti-oxidant effects (14).

Collectively, these pharmacodynamic actions justify the classical indication of *Kharjuradi Mantha* in fatigue, thirst, and alcohol-induced debility.

Need for Modernization

Traditional *Mantha* preparations are freshly made and perishable, limiting shelf life and portability. Modern consumers seek convenient, ready-to-use formulations with longer stability and precise dosing.

Effervescent dosage forms—powders, granules, or tablets that fizz upon mixing with water—have emerged as ideal candidates for such modernization. They provide rapid dissolution, improved taste, uniform dose, and better patient compliance (5,15).

Effervescent Formulation: Concept and Advantages
Effervescent systems are based on acid-base reactions, usually between citric/tartaric acid and sodium bicarbonate, releasing carbon dioxide when in contact with water. This reaction results in quick dissolution and enhanced palatability.

Advantages in Ayurvedic reformulation include:

- Improved solubility and absorption of water-soluble actives
- Enhanced palatability and taste masking
- Easy administration, especially for geriatrics and children
- Portable and stable dosage form
- Precise dose and reproducibility
- Reduced preparation time for consumers

Formulating *Kharjuradi Mantha* into an effervescent form preserves its essence while meeting modern pharmaceutical standards (5,15,16).

Challenges in Formulation

Despite its advantages, formulating herbal effervescent products presents certain difficulties (16,17):

1. **Moisture Sensitivity** – Both herbal powders and effervescent agents are hygroscopic; strict moisture control is needed.
2. **pH Stability** – Acidic environments during effervescence may degrade phytochemicals like vitamin C.
3. **Excipient Compatibility** – Herbal actives may interact with acids or bases, requiring pre-formulation testing (FTIR/DSC).
4. **Taste Optimization** – Balancing sour and sweet flavors to retain Ayurvedic *rasa* while ensuring consumer acceptability.
5. **Standardization** – Quantifying marker compounds (e.g., total phenolics, sugars, ascorbic acid) to match classical potency.
6. **Packaging and Shelf Life** – Using moisture-proof, air-tight materials with desiccants to maintain stability.

Formulation Development Roadmap

To prepare an effervescent *Kharjuradi Mantha*, the following scientific steps can be followed (17,18):

Stage	Experimental Step	Objective
1. Raw Material Authentication	Verify botanical identity; evaluate moisture, total sugar, vitamin C, phenolics	Quality control
2. Extraction / Powdering	Coarse powder or lyophilized extract; maintain low temperature	Preserve active compounds
3. Pre-formulation Studies	Evaluate flow properties, pH stability, FTIR for compatibility	Select suitable excipients
4. Effervescent Agents	Citric acid + tartaric acid: sodium bicarbonate (1:2 ratio)	Gas generation
5. Excipients	Binder (PVP K30), sweeteners (date sugar/stevia), flavor (natural fruit)	Palatability
6. Granulation / Compression	Dry granulation or direct compression	Stability
7. Evaluation	Effervescence time, disintegration, pH, taste, active content, microbial load	Quality testing
8. Stability & Packaging	Accelerated stability studies (40 °C / 75 % RH), foil sachets	Shelf-life validation

When reconstituted in ~100 ml cold water, the effervescent drink should approximate the strength and sensory characteristics of traditional *Kharjuradi Mantha*.

Ayurvedic Integrity and Quality Preservation

Any modernization must preserve the classical parameters:

- Rasa (Taste): Predominantly *Madhura-Amla*, aiding in *Pitta* pacification.
- Guna (Qualities): *Guru* and *Snigdha*, imparting nourishment.
- Virya (Potency): *Sheeta* (cooling), maintained by avoiding heat during processing.
- Vipaka: *Madhura*, ensuring rejuvenative post-digestive effect.
- Prabhava: Restores *Ojas* and relieves thirst.

Hence, excipients or processes that introduce excessive heat or dryness must be avoided to retain *Sheeta virya* and *Brimhana* properties (2,4).

Contemporary Research on Herbal Effervescent Systems

Several studies demonstrate the feasibility of herbal effervescent dosage forms:

- Effervescent Amla Granules: Lyophilized *Emblica officinalis* formulated with sodium bicarbonate and citric acid showed rapid disintegration (22 s) and retained antioxidant activity (18).

- Effervescent *Martynia annua* Granules: Demonstrated good flow properties, effervescence time, and taste acceptance (19).
- Recent Review (2025): Butar-Butar et al. highlighted the opportunities and challenges in herbal effervescent systems, emphasizing moisture management and phytochemical compatibility (5).

These findings guide similar formulation strategies for *Kharjuradi Mantha*.

II. DISCUSSION

Kharjuradi Mantha may in the future emerge as an excellent example of an Ayurvedic formulation that can align with modern nutritional and therapeutic principles. Its unique combination of sweet and sour fruits could be explored for providing natural sugars, electrolytes, antioxidants, and polyphenols that might help in combating fatigue, dehydration, and oxidative stress.

In the coming years, transforming this traditional preparation into an effervescent dosage form can open new possibilities for its use as a functional beverage or Ayurvedic nutraceutical. However, further scientific

studies and validations through standardization, stability testing, and controlled clinical trials will be required to confirm its safety and efficacy.

III. FUTURE SCOPE OF RESEARCH

In the future, research can be undertaken on the following aspects:

- Quantitative standardization of active compounds to ensure uniformity.
- Comparative studies between classical and effervescent forms to evaluate efficacy.
- Pharmacokinetic profiling to determine bioavailability and absorption.
- Consumer acceptability and sensory analysis for wider market reach.
- Shelf-life and microbial stability studies to ensure long-term preservation.

IV. CONCLUSION

In the future, Kharjuradi Mantha as mentioned in Sharangadhara Samhita can be studied further for its nutritive, cooling, and restorative potential. It may help manage Madatyaya, dehydration, and weakness by improving Ojas and balancing Pitta and Vata. The development of an effervescent form could enhance its palatability, stability, and global acceptability while maintaining its classical Ayurvedic essence. Hence, future studies can focus on bridging traditional wisdom with modern innovation, making Mantha-based formulations more relevant, standardized, and accessible to contemporary healthcare systems. This approach can serve as a milestone in presenting Ayurveda in a scientifically validated and globally acceptable form.

REFERENCES

- [1] Sharma PV. Dravyaguna Vigyana. Chaukhambha Bharati Academy; 2015.
- [2] Sharangadhara. Sharangadhara Samhita, Madhyama Khanda, Manthakalpana Adhyaya 3/9-10. Varanasi: Chaukhambha Orientalia; 2012.
- [3] Javeed A, Chate V, Shreevathsa. A clinical study to evaluate the role of Kharjooradi Mantha in enhancement of Ojo Guna in Madatyayi subjects. J Ayurveda Integr Med Sci. 2018;3(5):14-20.
- [4] Bhavaprakasha Nighantu, commentary by Chunekar KC. Varanasi: Chaukhambha Bharati Academy; 2010.
- [5] Butar-Butar ME, Roni A, Pahlevi MR, Zaelani D, Sagita ND, Pratama R. Recent advances in herbal effervescent formulations: Challenges and opportunities. Sci Pharm (ETFLIN). 2025;4(1):40-50.
- [6] Vikaspedia. Kharjuradi Mantha—method of preparation and health benefits [Internet]. 2023 [cited 2025 Oct 7]. Available from: <https://vikaspedia.in/health/ayurveda/kharjuradi-mantha>
- [7] Sabu MC, Kuttan R. Antidiabetic and antioxidant activity of *Embolia officinalis*. J Ethnopharmacol. 2002;81(2):155-60.
- [8] Clinical Trials Registry of India. To see the effect of Madatyayahar Kashaya and Kharjuradi Mantha in alcohol use disorder. CTRI/2024/07/070530 [Internet]. Available from: <https://trial.medpath.com/clinical-trial/ea60749f9704ac86>
- [9] Baliga MS, Baliga BR, Kandathil SM, Bhat HP, Vayalil PK. A review of the chemistry and pharmacology of *Phoenix dactylifera* L. Food Res Int. 2011;44(7):1812-22.
- [10] Singh R, Vinayak M. Resveratrol ameliorates oxidative stress and inflammation in hepatic tissue. Life Sci. 2015; 136:1-9.
- [11] Krishnaveni M, Mirunalini S. Therapeutic potential of *Phyllanthus emblica* (amla): the Ayurvedic wonder. J Basic Clin Physiol Pharmacol. 2010;21(1):93-105.
- [12] Jurenka JS. Therapeutic applications of pomegranate (*Punica granatum*): a review. Altern Med Rev. 2008;13(2):128-44.
- [13] Sudjaroen Y, et al. Antioxidant and anti-inflammatory activities of *Tamarindus indica* extracts. Food Chem. 2005;90(1-2):85-92.
- [14] Dey P, Chaudhuri TK. Antioxidant potential of *Flacourtia indica* bark extract. Indian J Exp Biol. 2013;51(11):1003-10.
- [15] Lachman L, Lieberman HA, Kanig JL. The Theory and Practice of Industrial Pharmacy. 3rd ed. Philadelphia: Lea & Febiger; 1986.
- [16] Rowe RC, Sheskey PJ, Quinn ME, editors. Handbook of Pharmaceutical Excipients. 7th ed. London: Pharmaceutical Press; 2012.

- [17] Pandey P, Kumar N, et al. Formulation and evaluation of herbal effervescent granules incorporated with *Martynia annua* extract. *J DrugDeliv Ther. * 2021;11(4):16–21.
- [18] Jain A, Gupta N. Development of herbal effervescent granules of *Emblica officinalis* and evaluation of antioxidant potential. Int J Pharm Sci Res. 2020;11(10):5409–15.
- [19] Choudhary N, et al. Design of effervescent nutraceutical formulations: review and perspectives. Pharma Innov J. 2022;11(3):678–84.