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REVIEW ON CLASSICAL METHODS AND PHARMACEUTICAL ADVANCEMENT IN PREPARATION OF ASAVA AND ARISHTA

[1]*Prajakta R. Giratkar and [2]Sneha Kubde

[1]PG Scholar, Dept. of Ras Shastra and Bhaishajya Kalpana, BMAM Nagpur.

[2]Guide, HOD and Professor, Dept. of Ras Shastra and Bhaishajya Kalpana, BMAM Nagpur.

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***Corresponding Author**
Dr. Prajakta R. Giratkar
PG Scholar, Dept. of Ras Shastra and Bhaishajya Kalpana, BMAM Nagpur.

ABSTRACT

Asava and Arista have been integral to Ayurvedic medicine for over 3000 years, offering treatment for a wide array of ailments. However, as commercialization has surged, ensuring the safety and effectiveness of Ayurvedic products has become a pressing concern. It is imperative to establish qualitative and quantitative evaluation criteria for Asava and Arista formulations to uphold their quality and safety standards. This necessitates a thorough examination of traditional practices and literature to identify fundamental similarities and differences between traditionally prepared Asava-Arishta and contemporary production methods. The primary objective of this study is to compile knowledge from traditional sources and contemporary practices, elucidate technological intricacies, define analytical parameters, and standardize formulations to align with modern protocols. Our review encompasses literature spanning from the Vedic period to recent publications such as the Ayurvedic Formulary of India. Despite the therapeutic utility of numerous Asava-Arishta formulations documented in ancient texts, there exists ample opportunity to scientifically validate them using interdisciplinary approaches for the betterment of humanity. Notably, while modern production techniques may differ in technology and scale, they generally adhere to traditional norms, albeit with certain variations.

KEYWORDS: Asava, Arishta, Standardization, technology, Parameters.

1. INTRODUCTION

1.1 Background: Asava and Arishta represent liquid Ayurvedic formulations crafted through fermentation processes, harnessing the therapeutic properties of medicinal herbs and

natural ingredients. These formulations play a crucial role in Ayurveda, an ancient Indian healthcare system with a rich heritage spanning thousands of years. Asava and Arishta are distinctive in Ayurveda due to their extended shelf life, attributed to the self-generated alcohol during fermentation. This process enhances the pharmaceutical and therapeutic aspects of the products. Asava and Arishta formulations can be likened to medicated wines, where microbial transformation initiates alcohol production, facilitating the extraction of therapeutic compounds and improving the bioavailability of ingredients. These liquid forms are a safe, potent, and easily administered way of delivering multiple phytochemicals with therapeutic benefits. The fermentation process, standardized since ancient times, involves native microbes that biotransform initial ingredients into more effective therapeutics, enhancing the therapeutic properties. The hydro-alcoholic extraction of phytoconstituents from herbs further improves drug delivery within the consumer's body.[1]

Pharmaceutical advancements have significantly contributed to the evolution of the preparation techniques for Asava and Arishta, liquid Ayurvedic formulations with deep-rooted significance in traditional healthcare. The dynamic landscape of modern pharmaceutical science has brought about innovations in the processing and production of these formulations, marrying traditional wisdom with contemporary methods. These advancements aim to enhance the overall quality, safety, and efficacy of Asava and Arishta, aligning them with the evolving standards of pharmaceutical practices. This integration of traditional Ayurvedic knowledge with state-of-the-art pharmaceutical techniques marks a pivotal step forward in ensuring the continued relevance and effectiveness of these ancient therapeutic formulations. It is essential to uphold technical standards in the manufacturing and development processes and establish standardized evaluation procedures for Ayurvedic formulations. This approach aims to improve the acceptance and global commercialization of these formulations by ensuring consistent quality and effectiveness.[2] This paper aims to review the traditional and contemporary methods of preparing Asava and Arishta, emphasizing the need for standardization in line with current pharmaceutical protocols.[3]

1.2 Objectives

- To review the historical significance of Asava and Arishta in Ayurveda.
- To explore classical methods of preparation.
- To examine modern pharmaceutical advancements in their formulation.

- To analyse the results of recent studies on the efficacy and safety of Asava and Arishta.

2. Methods

Ayurveda, the ancient Indian system of medicine, outlines specific methodologies for the preparation of Asava and Arishta, emphasizing the meticulous selection of herbs, precise measurements, and traditional fermentation processes. Additionally, contemporary pharmaceutical advancements have introduced standardized manufacturing practices, quality control measures, and advanced analytical techniques to enhance the reproducibility, safety, and efficacy of these formulations.

2.1 Classical textbook review

Classical Ayurvedic texts, including Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya, provide detailed guidelines for the preparation of Asava and Arishta. The traditional methods involve a series of carefully orchestrated steps.

During the Vedic period (1500 – 500 BCE), yogurt, a fermented milk product, and various formulations like Medaka and asava-arishta were prepared in wooden containers as ritualistic offerings. Rigveda and Kautilya Arthashastra mention fermentation techniques using microbial inoculums. Post-Vedic, medicinal fermentation became widespread, employing ingredients such as barley, rice, grapes, sugarcane, dates, honey, and flowers like Dhataki and Madhuka for medicament development with self-generated alcohol, as outlined in later texts.

The major Ayurvedic texts, Charaka Samhita, Sushruta Samhita, and Ashtang Hridaya, extensively detail the pharmaceutical and therapeutic aspects of fermentation, focusing on "madya" (wines) and "asava-arishta." Charaka Samhita lists nine herbal sources like fruits, cereals, roots, flowers, bark, exudate, branches, leaves, and sugar for fermentation. It elaborates on the process, container specifications, fermentation time, testing parameters, product outcomes, and therapeutic uses. Charaka recognizes Soma as the best medicinal preparation and sura as the most refreshing drink. Sushruta Samhita outlines fermented products for surgical anesthesia and various diseases. Ashtang Hridaya introduces the use of Woodfordia fruticosa flowers for asava-arishta fermentation. The text also mentions sources like grapes, sugarcane, honey, rice, and grains for preparing exhilarative drinks known as "madya."[4,5,6]

2.2 Classical Preparation

2.2.1 Selection of Ingredients

The foundation of Asava and Arishta lies in the selection of appropriate herbs, fruits, and other natural ingredients. Classical texts emphasize the importance of using fresh, high-quality raw materials. Each ingredient is chosen based on its therapeutic properties and synergistic effects in the formulation.

2.2.2 Traditional Processing

The ancient texts recommend diverse containers, such as earthen and wooden pots for fermentation. Specific containers like iron for Madhvasva, stone for Kumariasava, and even gold for Saraswatarishta are mentioned. Before use, vessels undergo cleaning through medicinal fumigation (dhoopana) and coating with medicines (lepana). For the fermentation of asava-arishta, liquid ingredients like fresh juice are gathered in specified quantities, following outlined procedures. The juice or decoction is prepared accordingly. Sweet ingredients like honey, jaggery, or sugar are added as a base for fermentation, along with a fermentation-triggering substance (Sandhan Dravya) and additional additives (Prakshep dravyas). The mixture is then transferred to the chosen vessel, sealed for fermentation.[7]

2.2.3 Duration and Storage

Classical texts specify the duration of fermentation, ranging from weeks to months, depending on the formulation. The fermented liquid is then carefully strained and stored in airtight containers. The storage conditions play a vital role in the maturation of the formulations, ensuring their stability and efficacy over time.

The sealed vessels containing material under fermentation is ideally kept in a place with minimum temperature deviation. This is achieved through putting containers (vessels) in a heap of grains – *dhanya rashi* as for *Kanakbindu arishta*, or buried in the earth of *bhugarbha*, *chaulyagara* (*kharjurasava*), *koshthasara* (*kumaryasava*). Duration for fermentation process is suggested based on *desh*, the topography, *ritu*, the season and the *dravyas*, the type of ingredients. The cold, winter season require a couple of weeks more for completion of fermentation than in summer, the hot season which may take only a week or two. The right storage of vessels helps optimize fermentation time.[7]

2.2.4 Ayurvedic parameters of completion of fermentation process

1. Clear liquid without any froth
2. Pleasant aromatic odour of alcohol
3. Should not have sour-taste
4. No effervescence sound
5. Additives sink to the bottom
6. Burning candle burns brightly when placed in or just above the Sandhan Patra
7. Sweetish and slightly acidic taste
8. Lime water test negative

2.3 Modern Advancements

Modern pharmaceutical advancements seek to refine and standardize the preparation of Asava and Arishta, addressing challenges related to consistency, quality, and scalability.

2.3.1 Large Scale Production

Currently, the Ayurvedic industry produces asava-arishta preparations in large quantities, typically in thousands of litres. In the mass production process, mills, pulverisers, and mixing machines are utilized for powdering, grinding, and mixing, respectively. Large steam jacketed boilers are employed for preparing decoctions. Fermentation takes place in sizeable airtight wooden vats with wooden covers or in large steel vessels. Yeast is directly added to initiate and expedite the fermentation process. Filtration is accomplished using an electric filter press with efficient filter sheets that separate suspended particles and isolate clear liquid. In large-scale production, a low concentration of sugary material (approximately 12-13% of the total proportion) is added to the fermenting medium. Once the desired alcohol content is reached, typically around 12% within 4-5 days, the remaining sugary or sweet ingredients specified by the formula are added. Additives and preservatives like sodium benzoate are also introduced at this stage. After the self-generated alcohol has absorbed the active ingredients of the additives, and the additives settle at the bottom of the vessel (usually in 7-8 days), the asava-arishta is ready for filtration and bottling. This method requires a total time period of 16-20 days, significantly shorter than the 45-90 days needed in the traditional process. Some practitioners, however, question the claims of increased extractable attributes and extended shelf life due to higher alcohol content, citing observed cases of patient non-compliance and acidity after the administration of asava or arishta prepared using this method.[7]

2.3.2 Standardization and Quality Control

Contemporary manufacturing processes incorporate standardized procedures to ensure consistency in formulation. Quality control measures involve rigorous testing of raw materials, intermediate products, and final formulations to meet established standards. This helps mitigate variations and ensures the safety and efficacy of the end product.

The Ayurvedic Pharmacopoeia of India, specifically Part 2, Volume 2, provides comprehensive monographs for 24 formulations of Asava and Arishta. Additionally, the Ayurvedic Formulary of India is an authoritative reference, with Part 1 detailing 37 formulations, Part 2 featuring three formulations, and Part 3 elucidating 17 formulations of Asava and Arishta. These documents serve as invaluable resources for practitioners, researchers, and policymakers involved in Ayurveda, offering detailed insights into the composition, preparation methods, and therapeutic applications of Asava and Arishta formulations.

The Ayurvedic Pharmacopoeia of India and Ayurvedic Formulary of India play pivotal roles in standardizing Ayurvedic medicines, ensuring quality, safety, and efficacy. They serve as crucial references for regulatory authorities, researchers, and healthcare professionals, contributing to the promotion and preservation of traditional Indian medicine.[8,3]

2.3.3 Advanced Analytical Techniques

Modern analytical techniques, such as high-performance liquid chromatography (HPLC) and mass spectrometry, play a pivotal role in identifying and quantifying active constituents.

These methods provide a scientific basis for quality assurance and help establish correlations between the composition of herbal ingredients and therapeutic outcomes.

1. Morphological/ organoleptic evaluation. Such as colour, odour etc.
2. Physical evaluation

a) pH
b) Specific gravity
c) Total solids

3. Alcohol content
4. Reducing sugar
5. Non-reducing sugar
6. Test for Methanol

7. Total acidity
8. TLC
9. HPTLC
10. Refractive index

In summary, the classical methods of Asava and Arishta preparation, rooted in ancient Ayurvedic wisdom, provide a foundation for their therapeutic significance. Modern pharmaceutical advancements, embracing standardization and advanced technologies, contribute to the evolution and acceptance of these formulations in contemporary healthcare. The integration of traditional knowledge with modern methodologies presents a promising path for the continued exploration and application of Asava and Arishta in diverse health contexts.

3. RESULT

3.1 Classical Methods: Traditional preparation of Asava involves soaking medicinal herbs in water or herbal decoctions and fermenting with natural sugars, while Arishta is prepared by boiling the ingredients in water and fermenting. Classical texts provide detailed guidelines on the selection of herbs, fermentation duration, and storage conditions.

3.2 Modern Advancements: Recent pharmaceutical advancements include standardized manufacturing processes, quality control measures, and the use of advanced analytical techniques. Modern formulations aim to enhance bioavailability, stability, and reproducibility.

The survey of classical Ayurvedic literature reveals a rich repository of knowledge on Asava and Arishta formulations. These texts provide insights into the selection of herbs, preparation methods, and therapeutic indications. Modern pharmaceutical advancements have introduced technological variations while still adhering to traditional norms. The use of air-conditioned rooms for sandhana sthala and yeast as sandhaneeya dravya exemplify these adaptations.

4. DISCUSSION

Integration of Traditional and Modern Approaches: The review highlights the importance of preserving traditional knowledge while integrating modern pharmaceutical advancements.

Standardization and quality control measures ensure consistency and safety in Asava and Arishta production. The juxtaposition of classical methods with contemporary pharmaceutical advancements highlights the importance of bridging the gap between ancient wisdom and

modern standards.[9] While traditional formulations have proven therapeutic benefits, the integration of technology offers opportunities for standardization and validation. The paper discusses the challenges and opportunities in harmonizing classical knowledge with present-day production requirements.[10]

Future Directions: Further research should focus on optimizing formulations, understanding the mechanism of action, and conducting large-scale clinical trials to establish the efficacy and safety of Asava and Arishta in various health conditions.

5. CONCLUSION

This review underscores the need for a meticulous balance between traditional Ayurvedic wisdom and pharmaceutical advancements in the preparation of Asava and Arishta.

Standardization, validation, and scientific reevaluation can ensure the safety and efficacy of these formulations in the context of contemporary healthcare. This research contributes to the ongoing dialogue between traditional Ayurveda and modern pharmaceutical practices.[11]

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