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Quality Assurance and Stability of *Asava* & *Arishta*

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ABSTRACT

Plants/herbs are main source of synthesizing the organic compounds generally used in the modern medicine in curing various forms in the most ancient system of therapy known as Ayurveda. A scientific approach for the preparation of *Asavas/Arista*, which is a fermented product with so many plant origin drugs along with jaggary was first described by *Acharya Sharangdhar*. In the present research paper the worked out values for the quality control and the stability of *Asavas/Arishta* were discussed for the two *Asavas* and two *Arishtas*. The observations are made for pH, percentage alcohol, percentage sugar etc. of the respective formulations. The observed values conclude that there is not any specific change in the findings that prove the version of textual reference that *Asavas* and *Arishtas* didn't lose their efficacy for longer period. The pH of *Asavas* and *Arishtas* used in this study is found to be in the range of 3.60 to 4.30 which clearly indicated that the preparation is acidic where as the alcohol range from 5% to 8% indicated that the organic compounds concerned to the ingredients present in the formulation are well protected in its self-generated alcohol produced during the preparation under fermentation process. The worked out parameters for transmittance also concludes its longer stability.

Key words: *Asava, Arishta, Quality Assurance, Stability.*

INTRODUCTION

The Ayurvedic text describes various *Kalpanas* through which the plants/herbs are being used as medicinal preparations.[1] *Panchavidha Kashaya Kalpana* is the backbone of all the Ayurvedic formulations in which *Asavas* and *Arishta* is also included. *Asavas* and *Aristas* are the preparation obtained by soaking the requisite amount of drugs in its various forms either in powder of in decoction in a solution of jaggery for a specified period during which the preparation undergoes fermentation.[2] Generally ethyl alcohol is formed in this process which facilitates the active principle of successive drugs preserved.

There is basic difference in the preparation of *Asavas* and *Arishtas*. The *Asavas* are prepared by immersing all the ingredients of the formulations in coarse form in the jaggery solution whereas in *Arishtas,* decoction of the ingredient *Dravyas* are first prepared as indicated in the textual reference and then by adding other specific substances called *Prakshepa Dravyas*. In both cases the liquid is kept for fermentation. The conditions for fermentation etc. remain same as per the textual references.[2]

The present work is an attempt to work out the physio-chemical parameters for getting the quality assurance of these *Asavas* and *Arishtas.* The textual reference of Indian system of medicine advocates about the longer stability and efficacious character of these *Asavas* and *Arishtas* with passage of time, thus an attempt is being made to observe and study the changes in certain chemical parameter with the

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passage of time so as to assess the stability of formulations.

Materials and Methods

In the present work two *Asavas* and two *Arishtas* are chosen for getting the analytical parameter for its quality assurance and the stability. The study of these four *Asavas* and *Arishtas* is for the evaluation of the standards for quality, efficacy and its stability. The PVC drums are generally used for the preparation of these formulations. The formulations used in this research work as mentioned below are taken from reputed organization Shri Hans Ayurved Bhawan, Haridwar.

1. *Kumaryasava*[3]
2. *Patrangasava* [4]
3. *Abhayarishta*[3]
4. *Ashwagandharishta*[3]

The pH meter, Photo colorimeter, hot air oven, Clevenger apparatus and other necessary equipments are being used in the present study. *Abhyarishta* has been chosen for the determination of the optical density and percentage transmittance in which 10% freshly prepared aqueous solution of the drug is used.

Observations and Results

Table 1: Physio-chemical parameters of *Asavas* and *Arishtas*

Parameters	**Name of Drug**			
	Asava		***Arishta***	
	Kumaryasava	***Patrangasava***	***Abhyarishta***	***Ashwagandharishta***
Colour	Light brown	Light brown	Light brown	Light brown
Taste	Astringent	Astringent	Astringent	Astringent
Odour	Fragrant	Fragrant	Fragrant	Aromatic
Test for Methanol	Absent	Absent	Absent	Absent
Phenolic content	NIL	NIL	NIL	NIL
% Total solid w/w(110^{0}c)	21.22	31.45	19.20	28.5
Specific gravity	1.1080	1.1465	1.0066	1.0453
pH	3.60	4.40	4.15	4.30
% Total sugar	28.8	36.0	10.80	15.4
% Alcohol v/v	5.08	8.06	8.06	6.08

Table 2: Analytical parameters of *Asava* and *Arista* with passage of time for stability

SN	**Name of drug**	**Parameters for stability of *Asavas / Arishtas***		
		pH	**% Sugar**	**% Alcohol**
1	*Kumaryasava*			
	after 6 months	3.97	45.6	2.12
	after 12 months	4.05	44.5	2.12
2	*Patrangasava*			
	after 6 months	4.42	36.0	8.13
	after 12 months	4.38	36.5	8.10
3	*Abhyarishta*			
	after 6 months	4.38	19.6	8.10
	after 12 month	4.40	20.0	8.05
4	*Ashwagandharishta*			

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	after 6 months after 12 month	3.85 3.80	21.8 21.6	7.12 6.10

Table 3: Photo colorimetric observation of 10% diluted solution

No. of days	Filter used	% Transmittance	Optical density
0	Red Green	52 30	0.27 0.52
10	Red Green	44 28	0.36 0.54
20	Red Green	44 18	0.36 0.75
30	Red Green	42 24	0.38 0.62
60	Red Green	14 25	0.36 0.60

DISCUSSION

The present work is carried out for the analytical parameters e.g. total solid, specific gravity, pH, total sugar and the percentage alcohol shown in table no. 1 for respective *Asavas* and *Arishtas*. The drugs are kept in coloured bottles so as to protect them from any change due to the sunlight. It was found that the pH of these *Asavas* and *Arishtas* are in the range of 3.60 to 4.30 which clearly signifies the acidic character of drug. The percentage of total sugar is also found to be in the range of 10.8 to 28.8, this is due to the fact that the quality of jaggery (*Guda*) and other ingredients, which contain sugar, vary from one preparation to the other. In the same sequence the specific gravity and the percentage of total solid are found in the range of 1.00 - 1.10 and 19.2 - 32.5 respectively. The self generated alcohol is found in the range of 5 to 8% v/v.

Asavas and *Arishtas* are categorized in *Madyavarga* in the Ayurvedic texts.[5],[6] These formulations can be used for longer period without losing its therapeutics. To get it proved, a bit of work for the stability of these drugs has also been worked out with respect to the analytical parameters of pH, total sugar and alcohol for 360 days. There was no any significant change observed for the worked out analytical parameter for these *Asavas* and *Arishtas.* The concerned values with respect to the time for respective formulations are shown in table no. 2.

To check the stability, a preliminary photo colorimetric study of *Abhyarishta* has been worked out for a very short period (60 days). The percentage transmittance and the optical density of 10% freshly prepared aqueous solutions of the chosen drug are determined by using Red and Green filters. The observations are shown in table no. 3. The Red filter was found to be most appropriated for getting values to a better interpretation of the result.

The percentage transmittance and optical density of 10% solution of *Abhyarishta* with specific interval of time as shown in table no. 2 is found to be in the near vicinity of 44 and 0.36 respectively, which concludes that *Asavas* and *Arishtas* doesn't lose their characteristics and therapeutics with the passage of time.

CONCLUSION

The worked out analytical parameters will certainly be fruitful for establishing the quality control of these formulations for a better therapeutical effect of these formulations, which concludes that *Asavas* and *Arishtas* doesn't lose their characteristics and therapeutics with the passage of time. This research work is a preliminary work its needs to work more work for judging the efficacious character for various diseases.

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