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QUALITATIVE ASSESSMENT OF DIFFERENT MARKETED BRANDS OF LOHASAVA

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ABSTRACT: The qualitative estimation of herbal formulation Lohasava, is of principal importance to justify their adequacy in the present system of medicine. One of the key problems which are faced by the herbal drug industry is the unavailability of rigid quality control profiles for herbal materials and their formulations. Regulatory bodies have such as WHO, AYUSH, ICH, *etc*., had laid down the standardization and specifications parameters for various Ayurvedic preparations. The present Investigation evaluated different brands of Lohasava available in the market as per WHO and Indian Pharmacopoeial specifications. Various physicochemical parameters such as Loss on drying, total ash, sugar content, alcohol content, and microbial content were determined. The result reveals that all the preparations contain acceptable levels of alcohol (less than 12% v/v).

INTRODUCTION: Standardization means adjusting the herbal drug preparation to defined content of a constituent or a group of substances with known therapeutic activity respectively by adding excipients or by making herbal drug preparations. Standardization is an essential factor for every single or polyherbal formulation to obtain and understand uniformity in active principles, therapeutic efficacy and quality of the ingredients, as the scope for variation in different batches of medicine, is enormous. Lack of Standardization of herbal drugs and plant medicines, in fact, hinders the use of medicinal plants in the modern system of medicine [1, 2, 3]. Asava and Arishta are fermented medicines - therefore mildly alcoholic. They are prepared by mixing sugar to juices or decoctions of raw drugs and letting them ferment. They are sweetish in taste, with slight acidity and a nice aroma. Asavas and Arishtas are similar.

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Asava-arishtas are self fermented preparations and are apparently an extension of cold infusion or decoction. The number of active herbs ranges from 1 to 70, and Dhataki pushp (*Woodfordia fruitcosa* flowers) and Madhuka (*Madhuca indica* flowers) used as inoculums for fermentation inductors. They have up to (6% - 12%) by volume alcohol content [4].

In the present research work, an attempt was made to standardize Lohasava a polyherbal formulation made up of herbs. Lohasava is used in the treatment of various disorders such as epilepsy, rheumatic arthritis, epilepsy, skin diseases, *etc*. It is chiefly used as anti-anemic medicine [5].

MATERIALS AND METHODS: [6, 7, 8, 9]

Collection of Lohasava: The four brands of Lohasava was purchased from the local market of Indore of different brands: Baidyanath, Dabur, Sandu, and Patanjali. They were coded was follows L1, L2, L3, and L4, respectively.

Botanical Parameters: Organoleptic evaluation was performed as per WHO guidelines to assess the color, odor, and taste of the all marketed formulations.

Determination of Solid Content: 5 ml of each sample were taken in the different tared dish and was evaporated at a low temperature until the liquid was removed and then heated until the residue was dried. After that, it was transferred to an oven and dried to constant weight at 105 °C.

Determination of Specific Gravity: The specific gravity was measured using the standard procedure using a pycnometer.

Determination of Viscosity: Viscosity of the samples were determined using Ostwald's viscometer.

Determination of Alcohol Content: 25 ml of the sample were taken in Round Bottom flasks to which 150 ml of water and pumice powder was added to it to avoid bumping then the sample was refluxed until 90 ml of distillate was collected in a 100 ml volumetric flask and cooled to 25 °C. The volume was adjusted to 100 ml with distilled water. Then the specific gravity of the sample was determined, which was compared to standard text was measured, and then alcohol content was determined as per the table is given in I.P.

Determination of pH: The pH of all formulations, *i.e.* L1, L2, L3, and L4, was determined with the help of pH meter.

Determination of Refractive Index: It was determined with the help of Abbes Refractometer.

Determination of Sugar Content: Sucrose (0.475g) was dissolved in 250 ml of distilled water. It was converted into invert sugar, by adding conc. HCl (2 ml) to it and boiling gently for 30 min. The solution was kept on boiling water-bath for about 2 h and neutralized with sodium carbonate. The neutralized solution was diluted up to 500 ml. 5 ml of each sample were taken and to every 25 ml of water was added, followed by 2 ml HCl and boiled for 2 h. Then it was filtered, and the filtrate was collected and neutralized with sodium bicarbonate, and the volume was made up to 250 ml. Fehling's solution was prepared freshly every time, by mixing equal volumes of Fehling's A and B. 10 ml of Fehling's solution was taken in porcelain evaporating basin and diluted with equal volume of distilled water. The solution was allowed to boil and titrated against standard invert sugar solution until the blue color entirely disappeared. Then the solution was allowed to cool till the precipitate of cuprous oxide was settled and the solution was boiled again until the end-point was approached. 5ml of the sample was dissolved in water and diluted up to 250 ml and titrated against 25 ml. of the standard Fehling's solution.

Determination of Acid Value: 10 ml of sample was taken and dissolved in 50 ml of an equal mixture of solvent ether and alcohol. This solution was titrated with 0.1N NaOH, 1 ml Phenolphthalein was added as an indicator and was titrated until the solution remained faintly pink after shaking for 30 sec. The acid-value of the sample was calculated by the following formula

$$n \times 5.61 \text{ Acid value} = w$$

n = the number of ml of 0.1N sodium hydroxide required; w = the weight in g of the substance

Phytochemical Screening: Active phytochemical constituents like glycosides, flavonoids, alkaloids, tannins, steroids, and carbohydrates were identified in aqueous extracts of all formulation.

RESULTS AND DISCUSSION: All the formulations of Lohasava were evaluated as per WHO guidelines. Botanical parameters revealed that the formulations were reddish brown, with alcoholic odor and bitter taste **Table 1**. The values for percentage of total solid content, specific gravity, viscosity, refractive index, acid value, alcohol content, sugar content and pH of all formulations are presented in **Table 2**. **Table 3** represents the various phytoconstituents present in the formulation.

TABLE 1: BOTANICAL PARAMETERS

Organoleptic Character ↓	Formulation Code →	L1	L2	L3	L4
Colour		Dark brown	Dark reddish brown	Dark reddish brown	Dark brown
Odor		Alcoholic	Alcoholic	Alcoholic	Alcoholic
Taste		Bitter	Bitter	Bitter	Bitter

TABLE 2: PHYSIO-CHEMICAL PARAMETERS

Physicochemical Character ↓	Formulation Code →	L1	L2	L3	L4
Specific Gravity(g/ml)		1.078±0.01	1.065±0.01	1.071±0.01	1.079±0.01
pH		3.54±0.03	4.01±0.02	3.67±0.02	3.94±0.01
Total Solid Content (%)		8.69±0.02	7.96±0.04	8.56±0.03	8.03±0.03
Alcohol content (%)		10±0.02	10±0.02	10±0.05	10±0.04
Sugar Content (%)		85±0.01	85±0.03	84±0.01	85±0.01
Refractive index		4.01±0.05	4.06±0.07	4.01±0.02	4.07±0.03
Viscosity (mPa.s)		1.91±0.03	1.97±0.03	1.94±0.02	2.02±0.01
Acid Value (%)		3.01±0.03	3.27±0.03	2.95±0.03	3.54±0.01

Values are mean ± SEM of three experiments

TABLE 3: PHYTOCHEMICAL SCREENING

S. no.	Chemical Test	L1	L2	L3	L4
1	Alkaloid				
	Dragandroff's Tests	–	–	–	–
	Mayer's test	–	–	–	–
2	Carbohydrate				
	Molish test	+	+	+	+
	Fehlings test	+	+	+	+
	Benedict test	+	+	+	+
4	Glycosides				
	Bortanger test	+	+	+	+
5	Saponin				
	Foam test	+	+	+	+
6	Tannin				
	5% $FeCl_3$ solution	+	+	+	+
	Lead acetate solution (5%):	+	+	+	+
7	Terpenoid				
	Salwoski test	+	+	+	+
12	Amino acid	+	+	+	+

CONCLUSION: The outcome obtains in this research work may be considered as tools for assistance to the regulatory authorities, scientific organization and manufacturers for developing standards.

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CONFLICT OF INTEREST: Nil

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