Review Article

REVIEW ON PHARMACOGNOSTICAL STUDY AND ANCIENT FERMENTATION FORMULATION ASAVA AND ARISTA

Bhaskar Kumar ^{*1}, Sukirti Upadhyay ², Prashant Upadhyay ²

¹Faculty of Pharmacy S.J.I.P.E.R, Bilari, Moradabad, U.P, India

²Faculty of Pharmacy, IFTM University Lodhipur Rajput, Delhi Road, Moradabad, U.P, India

*Corresponding Author Email: kumarbhaskar044@gmail.com

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ABSTRACT

Ayurvedic medicines are obtained from natural sources, which come from minerals, animals and plants. Different drugs will act on different drugs, and different drugs will act as different sites of action. Ayurvedic medicines are more beneficial for humans compared to allopathic medicine. Taking the drug in an accurate way is more important to maximize the therapeutic effect. A drug, poison or other substance that comes into contact with the body can be defined as the route of administration of the drug. Ayurvedic preparations are intended for internal and external use. Different dosage forms can be administered through different channels called skin, yoni-vagina, fly-oral, nasal, karna-ear, akshi-eyes, etc. Most of these routes are relevant. The main purpose of this document is to document this knowledge found in traditional literature.

Key words: Fermentation, Asava, Arishta, alcohol, methanol

INTRODUCTION

Asava and Arishtas are the best dosage forms in the Ayurvedic medicine system¹. Several formulations indicated for the treatment of many diseases have come into the Presence in the form of asava / arista.² Significant evolutionary changes in the conduct of healthy life in India through the Rig Veda, Sam Veda, Yajur Veda and Atharva Veda.³ It is known to be a complete medical system that includes physical, psychological, philosophical, ethical and spiritual health. A complete Ayurvedic medical system that includes psychological, physical, ethical, philosophical and spiritual health.⁴ The main goal of Ayurveda is to protect health and protect life from diseases and dysfunctions of the body.⁵ The Ayurvedic system of medicine is an animal base. A basic mineral and herbal medicine system that meets 70-80% of India's⁶ healthcare needs. Asava and arista, that is, sadhana kalpana, are considered the best medicinal form discovered by Ayurveda⁷ Medicinal herbs have been used in Ayurvedic medicine. system since ancient times in developed countries⁸ Asanas and edges are medicinal preparations prepared by soaking, either in the form of a coarse powder, or in the form of kashaya (decoction), in a solution of sugar or brown sugar, as the case may be, for a certain period during which it undergoes a fermentation process resulting in the formation of alcohol, which makes it easier extraction of active substances contained in drugs.⁹

JAGGERY

Jaggery is a traditional product and made by the sugarcane.¹⁰ Vernacular names of Jaggery are Gore in Gujarathi, Vellam in Tamil, Bella in Kannada, bedlam in Telugu, Gud in Hindi, and Punjabi, Gull in Marathi, Jaggery in Urdu. Sakkara in Malayalam.¹¹ Fresh infusions are prepared by macerating the crude drug for a short period with cold or boiling water.¹² Herbal

product including *Ayurvedic* medicine is available in a different form and is composed of single plant components or polyherbal formulations. The method of preparation as per classics is complicated in many cases.^{13, 14} The *jaggery* should be very old (*prapurana*) because fresh *jaggery* aggravates *Kapha* and suppresses the power of digestion.¹⁵ Preparations are prescribed 124 in Ayurvedic texts indicated for a wide range of disorders.¹⁶ In the hot *arista*, there was no alcohol on the day of filtration whereas in Cold *arista* recorded an alcohol generated content of 7.64%.^{17, 18}

Ayurvedic formulations are Arishta and Asavas, Rasa Rasayana, Bati, Churna, Avaleha, Ghrita, Taila & Guggulu¹⁹ *Sandhana Kalpana* (Asava, Arishta, kanji, etc.) to treat diseases in routine practice.²⁰ Ayurvedic science is recognized by traditional medicine on a par with modern medical science. Ayurveda is the pristine science known to human beings for more than 5,000 years for their healing, prevention, and longevity. Ayurveda is granted by the World Health Organisation (WHO) and became more popular in the Netherlands US, Italy, and many western countries.²¹ Ayurveda in daily life objective at maintaining consistency between nature and the individual to ensure the best health and Ayurvedic medicine is to promote health.²² Ayurveda medicine consists of different types of dosage form, among which *Arista* (fermented decoction) and *Asava* (fermented infusion) are considered as superior to other doses forms due to their taste, quick therapeutic action, and increased drug concentration.^{23, 24} Asavas and arista are medicinal preparations made by the drugs in the form of decoction (kwacha) or either in powder form in a solution of jaggery for a specified duration of time during it undergoes a process of fermentation generating alcohol.²⁵ Traditional herbal formulations have very important due to their natural choice, affordability, well-being, and harmlessness as compared to modern laboured drugs. Medicinal plants and their formulations are used by many people all over the

world for their primary health care.²⁶ Sandhana Kalpana is a strange form in which acidic and alcoholic fermented formulations are ready. For the production of these preparations, liquid preparations (juices or decoctions) are stored for fermentation, as indicated in the classical texts.

In this process, self-generated ethyl alcohol is produced by in-source goods used in the pharmaceutical process and is not added from outside. Here ethyl alcohol is not the only product yield but is a part of many other organic compound alcohol is formulated and extraction of active principles of the herbal drugs is done.²⁷

METHOD OF PREPARATION

Sandhana Kalpana was described in Charaka Samhita, Sushruta Samhita, various classical preparations were described in classical texts from Charaka Samhita onwards, but the preparation method was first dominated in Sharangadhara Samhita. The base liquid (possibly water, extracted juice or decoction) is taken into a container, a fermenting agent (Dhatki pushpaor kinva, i.e. deposits containing mold or yeast, etc.), sweeteners (sugar). brown, honey, etc.). and the mixture is packaged over a period of time (15-30 days or until signs of completion appear). The resulting liquid is an alcoholic acid fermented liquid. The methods used in the extraction of medicinal plants in asava and arishta are infusion and decoction²⁸.

Decoction

Conventional methods for extracting medicinal plant material to obtain an aqueous extract. Decoction is a water-based preparation for extracting active compounds from medicinal plant materials. In this process, the preparation of the liquid is carried out by boiling the plant material with water. The broth differs from the infusion in that the latter is not actively boiled. Decoction is the method of choice when working with hard fibrous plants, bark and roots, and plants that contain water-soluble chemicals. The plant material is usually broken up into small pieces. Various methods of making concoctions were mentioned. In the Ayurvedic method, commonly known as kwacha, an unprocessed preparation in the form of yakuza (small pieces) is placed in dirty copper containers with clay on the outside. Water is added and the pot is heated over a flame. If the material is flexible, water is used four times for 1 part of the medicine; if the medicine is moderately hard, water is used eight times, and if the medicine is very hard, water is recommended sixteen times. The mixture is then boiled over low heat until it is reduced to a quarter of the original volume in the case of soft drugs and to one-eighth in the case of very hard drugs. Then the extract is cooled and filtered, and the filtrate is collected in clean containers²⁹.

Infusion

Fresh infusions are ready by macerating the crude drug for a short duration of time with boiling water. Constituents of crude drugs are easily soluble in the solution. The basic instrument need for preparation of arista and asava a soiled pot sufficiently major and glazed, chinaware jar of proper size a cap to close the pot a cloth ribbon to seal the pot a paddle-like stirrer a spotless cloth of thin and strong texture for filtering, pot to keep the juices or boil the drugs.³⁰ The general components are split into four types according to their exclusive role in the process these attached the main herbs from which the extract or decoction is taken out. They yield drugs, which are pharmacologically and therapeutically very essential in the given medicine and the name of the medicine is derived from these herbs denoting their importance. The fermentation creator provides inoculum for the fermentation to start. The flavouring agents used in Asava and arista not only the

flavour of the medicine but having their pharmacological action too. The medium of sugars is needed for fermentation.³¹

METHODS USE FOR EXTRACTION OF HERBAL DRUG FOR PREPARATION OF ASAVARISHTA

Extraction can be defined as the process of extracting and separating active medicinal ingredients from plant or animal tissue by treating them with a specific solvent using this process. These extraction methods separate the soluble plant metabolites and leave an insoluble cell debris. The goal of standardized crude drug extraction procedures is to obtain the therapeutically desired dose and remove inert material by treatment with a selective solvent known as menstruum. The extract thus obtained can be prepared for use as a drug in the form of liquid extracts, and it can be further processed to be incorporated into any dosage form such as tablets or capsules.

Fermentation time

Fermentation becomes different according to different seasons. Fermentation takes place in 6 days during autumn and summer seasons, 8 days in rainy and Vasant seasons 10 days in winter. 30 days in a cool temperature climate. Generally in a hot tropical climate, 7-10 days are enough.³³ The duration of fermentation ranges from 7 days to 180 days with a different formulation.³⁴ The effect of fermentation time was studied in Amrita arishta which was kept for one year. Results manifest that the specific gravity, total solid content, and sugar content was gradually decreased with an increase in time. The alcohol content was found to be increased up to six months.³⁶

INOCULUM

Inoculation is the introduction of viable microorganisms into a host using a suitable growth medium. For the development of stable germplasm, artificial inoculation is necessary to ensure the development of the disease when natural infection is impossible and to reduce the influence of morphological signs³⁹.

The sweetened and flavored medicinal extract is poured into a bottle, the bottle is prepared. White space provides space for fermentation liquid when it rises due to foaming and the growth of large amounts of gases. But the medium can damage the container and leak. The inoculum must be added to start fermentation. When preparing alcoholic preparations in Ayurvedic systems, the yeast inoculum comes from dhataki flowers. The fermentation process requires the presence of yeast fermentation microorganisms. These flowers are nectar-bearing and highly flowered.^{30,40}

Flowers are added and the contents are shaken well to disperse the yeast inoculum. In addition to the fiery flame colors, if added other ingredients like honey, they also contain wild yeast. Finally, the pot must be closed and sealed. Sealing is done by turning a long tape of fabric that includes clay on one surface. When sealing, the empty surface of the tape should line up the rim of the glass and the lid, with the clay side facing out. After sealing, the container is placed in a dark place. It can be stored in a grain storage buried in a granary or in a hole in the ground. There should be soft straw around the container to prevent it from being destroyed.³⁰

Ash contains inorganic radicals such as phosphate, carbonate and silicates of sodium, potassium, magnesium, calcium etc. They are present in a certain amount, especially crude oil. Therefore, the quantitative determination with regard to different ash values helps with their standardization.

Sometimes inorganic variables such as calcium oxalate, silicon dioxide, raw drug carbonate affects the total ash content, this variable is eliminated by acid treatment and the value of acid-insoluble ash such as rhubarb, liquorice, etc. is determined.

It is used to determine the presence of inorganic foreign substances as impurities.

Total ash value 2 Gms of the drug was weighed accurately in a previously ignited and tarred silica crucible. The material was then ignited by gradually increasing the heat to 500- 600° C until; it appeared white indicating the absence of carbon

$$\text{Total Ash value} = \frac{\text{Weight of total ash}}{\text{Weight of crude drug taken}} \times 100$$

Acid insoluble: To the crucible containing total ash, 25ml of HCL was added and boiled gently for 5minutes, and then about 5ml of hot water was added and transferred into the crucible. The insoluble matter was collected on an ash less filter paper. This was then washed with hot water until filtrate is neutral and filter paper along with the insoluble matter was transferred into the crucible and ignited to constant weight.

$$\text{Acid insoluble ash value} = \frac{\text{Weight of acid insoluble ash}}{\text{Weight of crude drug taken}} \times 100$$

Water-soluble ash Sulphated ash: 5 g of the test sample was accurately weighed and placed in a conical flask with a glass lid. Then it is macerated in 100 ml of chloroform water for 18 hours. Then it was filtered and approximately 25 ml of the filtrate was transferred to porcelain dishes and evaporated to dryness in a water bath. Then it was dried at 105 °C for 6 hours, cooled and finally weighed.

Determination of the recovery value: The recovery value determines the number of active components present in a given plant material in a given solvent. The extract was prepared using various solvents using standard methods. The percentage of extract was calculated based on the air-dry powder of the leaves.

Extractive value

The alcohol-soluble extraction: Mass accurately weighed 5 g. The air-dried leaf powder of the drug sample was macerated in 100 ml ethanol in a closed flask for 24 hours, stirred frequently for 6 hours, and left for 18 hours. It was quickly filtered off, and 25 ml of the filtrate was evaporated to dryness on a silicate plate, resinous at 105 °C to constant weight, and cooled in desiccators

for 30 minutes. Then the percentage of extraction with soluble ethanol was calculated.

Ninhydrin test: Add two drops of freshly prepared 0.2% ninhydrin reagent (0.1% solution in n-butanol) to a small amount of extract solution and heat. The development of blue indicates the presence of proteins, peptides or amino acids.

Flavonoids

Shinoda's test: Several turns of magnesium are added dropwise to the test solution and hydrochloric acid is concentrated, after a few minutes a scarlet pink, crimson red, or sometimes green or blue color appears.

Steroids

Salkowski test: Dissolve the extract in chloroform and concentrate an equal volume. H₂SO₄. The formation of a bluish red or cherry color in the chloroform layer and the green fluorescence in the acid layer are steroid components in the test extract.

ALKALOIDS

Dragendroff's test: To 1 ml of the extract add 1 ml of Dragendroff's reagent (solution of potassium iodide and bismuth). An orange-red precipitate indicates the presence of alkaloids.

Mayer's test: Add 1 ml of Mayer's reagent (potassium iodide-mercury solution) to 1 ml of the extract. A whitish-yellow or creamy precipitate indicates the presence of alkaloids.

TOXICOLOGICAL PARAMETERS³⁸⁻⁴⁰

Test for iron

-To 5 ml test solution add few drops 2% potassium Ferrocyanide. Dark blue coloration is observed

-To 5 ml test solution add few drops 5% ammonium thiocyanate (or 5% potassium thiocyanate solution). The solution turns blood red.

Test for sulphate

-To 5 ml filtrate, add few drops 5% BaCl₂ solution. White crystalline BaSO₄ ppt. appears, insoluble in HCL.

-With lead acetate, the reagent gives white ppt, soluble in NaOH.

Calcium test

-For 10 ml of filtrate add 1 drop of diluted solution. NH₄OH and saturated ammonium oxalate solution. White ppt forms of calcium oxalate. Ppt. soluble in HCl but insoluble in acetic acid.

-The ammonium carbonate solution gives white ppt, which is insoluble in ammonium chloride solution - Give white ppt, with ammonium carbonate solution but not with ammonium chloride solution.

CONCLUSION

In this review discusses the tools and techniques used in pharmacognosy. Pharmacognostic evaluation assists in the selection of commercial varieties, substitutes, impurities and other quality control devices for medicines. It is a simple and reliable tool that provides information on the biochemical and physical properties of a raw drug. Methods such as macroscopic and microscopic analysis, maceration, histochemical color reaction, micrography, organoleptic character of plant powders and extracts, fluorescence analysis of plant powders with various

chemical reagents, determination of the pH of plant powders. Ayurvedic drugs can be administered to quickly improve the patient's condition. Ayurvedic medicines are losing value in the international market. Asava and Arista are considered the best in Ayurveda. The establishment of standards and formulations of Ayurvedic medicines to ensure the correct use of medicines that were produced in the interests of end consumer without abuse. Complications. Knowledge of Ayurveda is now allowed in old institutions, schools, hospitals and dissertations. These compounds have proven their importance and vitality as a tonic in many physiological conditions.

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