FORMULATION AND EVALUATION OF AVALEHA AS AN IMMUNITY BOOSTER

Sonali Dinesh Karade¹ Mr. V.A. Mahajan² Dr. N.B. Chougule³

Student¹, Ashokrao Mane institute of Pharmacy, Ambap

Assistant Professor², Ashokrao Mane Institute of Pharmacy, Ambap

Professor³, Ashokrao Mane Institute of Pharmacy, Ambap

**ABSTRACT:**

Avaleha, a classical Ayurvedic formulation, represents a complex and potent blend of herbs, minerals, and natural sweeteners. This traditional concoction is prepared through a meticulous process involving various stages such as selection of ingredients, precise measurements, and controlled heating. The aim of this study is to outline a comprehensive protocol for the preparation and standardization of Avaleha, ensuring its quality, safety, and efficacy. Key steps include sourcing high-quality raw materials, employing standardized manufacturing techniques, and implementing rigorous quality control measures. Standardization of Ayurvedic formulation is essential in order to assess the quality of drugs. The present study deals with standardization of Avaleha known to be effective in caugh and cold diseases and as immunity booster. Avaleha forrulation was prepared by reported traditional method of Ayurveda. Formulation was standardized by modern scientific. quality control procedure for the finished products. Standardization of Avaleha was achieved by organoleptic study and by studing physicochemical parameters such as pH, TLC, Loss on drying extractive values, ash value, total reducing sugars and stability study.

**Keyword :** Avaleha , Standardization, immunit booster, cold and cough

 **INTRODUCTION**

 “Ayurveda is a science, which describes the beneficial (hita) and the non- Beneficial (ahita) aspects of life, the happiness and pain in life, their quality and Quantity”**.** The word ‘Ayurveda’ is composed of two parts Ayur (Life) and Veda (knowledge).The origin of this science of life indeed difficult to pinpoint, it have been placed by Scholars of Ayurveda and ancient Indian literature at somewhere around 6000 BC[1] Ayurveda is the indigenous system of medicine being practiced for thousands of Years. This plant-based system Of medicine has already gained worldwide Attention due to its safety and efficacy. The A yurvedic system tauted as an “alternative system of medicine has become especially igniicant in the post-GATT Era[2]

 Ayurvedic, medicines are of various types, so as to meet the diverse requirements in the treatment of human illness. They are herbal teas infusions, decoctions, tinctures, capsules and powders, infused oils, ointments, creams, lotions etc. along with arishtas (fermented decoctions) and asavas (fermented infusions)”.[3] The quality herbal products may be obtained only through maintaining proper care from starting to culmination of its formulation. These include proper identification of plants, season and area of collection, extraction, purification and rationalizing he combination in case of polyherbal formulations. [4]Ayurvedic research gives ground to explore new drug entities to fight against varies disease conditions and to restore the healthy life of human beings [5]

**Avaleha**

Avaleha or Leha is a semi solid dosage form of Ayurvedic pharmaceutics intended for internal administration[6] lt is prepared by addition of jaggary, sugar or sugar candy and boiled with prescribed drug decoction or drug juice ete. liquids. It can be consumed along with some adjuvant.[7]

The word Avaleha has been derived from the root word "ihaswadane", in which lih' means substance which is licked and 'aswadane' means that which has good taste.[8] According to Acharya Sharangdhara, the semisolid mass obtained by continuous heating of Kwathadi basic Kalpanas is called Rasakriya/ Avaleha.[9]

**Synonyms :**

According to the consistency various synonyms are given to this preparation namely Avaleha, Leha, Lehya, Avalehva, Rasakriva, Ghana etc.[10]

**Importance of Avaleha Kalpana :**

* The Avaleha Kalpana has more shelf life period (or more stability) than that of Panchavidha Kashaya Kalpana.
* It has got more palatability, because it contains sweetening agents and therefore can be easily taken by child as well as adult.
* some of the Ayurvedic medicaments like Asava or Arista due to their Tikshna, Laghu property cannot be taken for longer period but Avaleha has no harmful effect even though taken for longer duration
* Avaleha Kalpana contains Madhura Dravya and Sneha Dravyas, these both works as preventatives and increase the shelf-life.
* Avaleha Kalpana can be used in diseased state as well as in healthy person as Vajikaran and Rasayana. Many Acharyas have prescribed chayavanprashavaleha, Branha Rasayana etc. that shows some apoptogenic effects in patients.[11]

 **PLANT PROFILE**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Sr.no**  | **Drug**  | **Scientific name**  | **Family**  | **Health benefits**  |
| **1.** | Ginger | Zingiberofficinale Roscoe | Zingiberaceae | ImmunityBooster[12, 13] Antiviral[14] |
| **2.** | Liquorice | Glycyrrhiza glabra L. | Fabaceae |  Anti-inflammatory[15] Immunomodulatory[16] |
| **3.** | Turmeric | Curcuma longa | Zingiberaceae | Anti-inflammatory[17]Anti -microbial[18] |
| **4.** | Pepermint | Mentha piperita L | Lamiaceae | Antibacterial [19] Immune booster[20] |
| **5.** | Garlic | Allium sativum | Liliaceae | Antibiotic [21] Anti-viral |
| **6.** | Honey | Honey | - | Cough relief [22] |
| **7.** | Basil | Ocimum basilicum | Mint | Anti inflammatory[23] Antioxidant |

**AIM AND OBJECTIVES**

To study the avalehakalpana

**MATERIAL AND EQUIPMENTS**

**Equipment :**

1. Wide mouthed stainless steel vessel
2. Strong spatula
3. Jute cloth
4. Gas burner
5. Glass jars

**Ingredients:**

|  |  |  |
| --- | --- | --- |
| **Sr.no** | **Ingredient** | **Proportion** |
| 1. | Ginger | 5 gm |
| 2. | Liquorice | 5gm |
| 3. | Turmeric | 5gm |
| 4. | Basil | 5gm |
| 5. | Peppermint | 1gm |
| 6. | Garlic oil | 2-3 drops |
| 7. | Honey | 2ml |
| 8. | Jaggery | 100gm |
| 9. | Water | 200ml |

**Preparation of Avaleha**

**Procedure:**

1. First, Jaggery is dissolved well in the decoction or liquid and strained to remove the foreign particles.
2. This solution is then boiled over a mandagni
3. When the Pakabecometantuvat, it hould be Removed from the fire.
4. Churna of herbs are then added in small quantities and stirred continuously and vigorously to form a homogenous mixture
5. Ghee is added while the Preparation is somewhat hot and mixed well
6. Honey is added at the last when the mixture or preparation is cool And mixed well

**Preservation :**

Avaleha should be stored in air tight container like glass jar, now a days it is stored in plastic container because plastic is non-reactive and easy to use, metal container may be reactive to Avaleha but it depends on content Used in Avaleha

**Savirvata Avadhi (shelf life):**

1 year according to Sharangdhara Samhita.[24]

**Dose of Avaleha :**

It varies from 12 grams to 96 grams This dose depends on the basis of Bala (strength) of the patient and the disease which is left to the physician to decide.

**Anupana** :

These are the Drava Drayyas which are to be taken after consuming avaleha. These help in proper absorption even as it exerts elinical effect on the doshas in varying degress, The commonly used Anupanas are milk, sugarcane juice, etc.

**EVALUATION OF AVALEHA**

1. **Collection and Authentication**

Collection of various drug powder ( Turmeric , ginger, liquorice, basil ) oils like papermint oil and garlic oil and honey

1. **Organoleptic Characterization**

Colour, odour, shape, test and size of the avaleha were observed.

1. **Physicochemical Characters**

Avaleha was subjected to standardization with different parameters as per literature.[1]

1. **Determination of total ash**

Incinerated about 2-3 gm accurately weighed, of the ground drug in a tared silica dish at a temperature not exceeding 4500C until free from carbon, cool and weight. If a carbon free ash cannot be obtained in this way, exhaust the charved mass with hot water, collected the residue on an ashless filter paper, incinerated the residue and filter paper, added ignited at a temperature not exceeding 4500C. Calculated the % of ash with reference to the air dried drug.

* W1 = weight of empty dish
* W2 = weight of dish with sample
* W3 = weight of dish after ingestion
1. **Determination of Acid-Insoluble ash**

To the crucible containing total ash, add 25 ml of dilute hydrochloric acid. Collected the insoluble matter on an ashless filter paper (Whatman 41) and washed with hot water until the filtrate is neutral. Transferred in the filter paper containing the insoluble matter to the original crucible, dry on a hot-plate and ignite to constant weight. Allowed the residue to cool in a suitable desiccator for 30 mins and weighed without delay. Calculated the content of acid insoluble ash with reference to the air-dried drug.

1. **Loss on drying**

10gm of Avaleha sample was taken in a evaporating dish. After placing the above said tarred Amount of the drug in the tarred evaporating dish, dry at 105 ⁰C for 5 hours, and weighed. Drying was continued till constant weight is reached and LOD was calculated’

**Loss on drying(%) = W2 – W3 (100)**

 **W2 – W1**

Where, W1= weight of empty porcelain dish

W2= weight of dish with sample before drying

W3 = weight of dish with sample after drying.

1. **Ph**

Digital pH meter was used to check the pH of formulations (EQUIP-TRONICS).

1. **TLC**

The glass or plastic plate coated with silica gel with particle size in the range of 2-25 um. The method of use for this system is as follows:

5 gof samplewasextracted with 75mLofethyl acetate under reflux on a water-bath for 30 min. The mixture was filtered and filtrate concentrated to 10 mL. 10 uL of sample solution was slowly spotted on to the plate at the origin. The spot has to be allowed to dry between each application of tUL. The plate was immersed in the mobile phase using toluene ethyl acetate (7 3) containeo in a tank and the liquid mobile phase is allowed to trarel up the silica ge/ plate by capillary action lodine vapours was used as a locating agent to identify the Point and R,value was calculated

1. **Sugar content ( Total reducing sugar)**

5 ml sample was pipetted with clean and sterilized pipette, diluted by adding 40 mL of distilled water and slowly 3 mL of conc

**B = volume of blank solution**

* **S = volume of sample solution**
* **C = sugar working standard concentration**
* **W= weight of sample**
* **V = volume of finel sample solution used during titration**

 **RESULT:**

**Organoleptic Characterization**

* **Color : chocolate brown color**
* **Odour: non specific pleasant odour**
* **Taste : sweet**

**Physico-chemical Characters**

The results of physicochemical characteristics are given in below Table . Evaluation done under specified conditions with specific temperature and humidity

|  |  |  |
| --- | --- | --- |
| Sr. No. | Parameter | Observation |
| 1 | Loss on drying | **5.58** |
| 2 | Total Ash value | 2.4% w/w |
| 3 | Acid insoluble ash value | 0.7 % w/w |
| 4 | Sugar content  | 62 % w/w |
| 5 | Rf value  | 0.64 |
| 6 | Ph | 4.80 |

**Table No 2: Physico-chemical Characters of Avaleha**

**CONCLUSION**

In Indian system of medicine majority of herbal products are made by using crude plant or portion of plant parts and their extracts. The formulation and standardization of Avaleha for immunity boosting are crucial steps in ensuring its effectiveness and safety. By carefully selecting potent herbs, following precise manufacturing processes, and adhering to quality control measures, a standardized Avaleha can be developed. This standardized formulation not only enhances its efficacy but also ensures consistency in its effects, making it a reliable option for improving immunity. Overall, the meticulous formulation and standardization of Avaleha play a pivotal role in promoting health and wellness.

Physicochemical parameters of the plant were studied. The formulations prepared using various mention drug was found to be good characteristics with respect to homogeneity, pH, rheological properties. .Further Stability studies of optimized formulation indicated that there was no significant change in physical change, pH, loss on drying, sugar content was observed for 1 month (40ºC/75% RH). The results of different chemical and physical tests of avaleha showed that the formation could be used as Immunity booster

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