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Preparation, Pharmaceutical and Analytical study of Dhatryavaleha – A Review

Patil A.¹, Mallannanavar V.², Shwetha D³

1. Associate Professor ,Dept of kaumarabhritya , at shri hingulambika ayurved medical college and hospital, kalaburagi , PhD scholar at SDMCA&H Hassan.
2. HOD & Professor Dept of Kaumarabhritya , at Sri Dharmasthala Manjunatheshwara college of ayurveda & Hospital , Hassan .
3. HOD & Professor, Dept of Kaumarabhritya, at Tapovana Ayurvedic Medical college and Hospital, Doddabatti, Davanagere , PhD Scholar at SDMC&H Hassan.

ABSTRACT: Avaleha is a semisolid form of medicine and is commonly used in all age group. Compared to Asava, Arishta, and Churnas. Pandu is well explained disease which is equivalent with Anemia. Iron deficiency is currently the most widespread micronutrient deficiency and affects nearly 1.5 billion people globally. Infants, preschool children's, adolescents are at greatest risk of iron deficiency and its resultant anemia. For the treatment of Pandu Roga several herbal and herbo mineral preparations are mentioned in Ayurvedic texts. Acharya charaka mentions Dhatryavaleha in Pandu roga chikitsa adhyaya. It is an herbal formulation Among the ingredients of Dhatryavaleha, Amalaki is the major component & it is having predominately Amla rasa (sour taste), it is Vayasthapaka(anti ageing) and Rasayana drug ,it may increase healthy status of the tissues. In ayurveda system of medicine, many studies state assuring results on the long term management of Pandu. But be constrained to have more clarity in ayurvedic management of Iron deficiency anemia in children with respect to selection of appropriate medicine and mode of administration. The present study is to study the preparation and analytical parameters of Dhatryavaleha. The preparation of Dhatryavaleha done by using sharakara paka, choornas of drugs and amalaki swarasa. The analytical study shows results like organoleptic characters of Dhatryavaleha are dark brown color, characteristic odour and sweet,sour after taste, pH 3.69, fat content 4%, solid content 90.0, total sugar 40.91, reducing sugar 8.18, Non reducing sugar 32.73, total ash 2.56, acid insoluble ash 0.64 are identified.

KEYWORDS: Dhatryavaleha, Iron deficiency anemia, Analytical study.

CORRESPONDING AUTHOR:

Dr. Annapurna R Patil

Associate prof ,Dept of kaumarabhritya , at shri hingulambika ayurved medical college and hospital, kalaburagi,
PhD scholar at SDMCA & H Hassan.

Email: dranupatil1@gmail.com

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INTRODUCTION:

Avaleha is a semisolid form of medicine and is commonly used in all age group. Compared to *Asava*, *Arishta*, and *Churnas*, *Avaleha* is used more easily^[1]. *Pandu* is well explained disease which is equivalent with Anemia on their reflection of etiopathology, clinical manifestations, management principles and risk factors. The treatment of Iron deficiency anemia in children is suboptimal due to multiple factors relating to anemia for prolonged time, unaffordability to buy medications, nutritional deficiencies in food and potential adverse effects of chronic ailments. In Ayurveda system of medicine, many studies state assuring results on the long term management of *Pandu*. But be constrained to have more clarity in ayurvedic management of Iron deficiency anemia in children with respect to selection of appropriate medicine and mode of administration. Aacharya charaka mentions *Dhatryavaleha* in *Pandu roga chikitsa adhyaya*^[2]. It is an herbal formulation and is one of such therapeutic cost effective medicine especially in young children. The present study is to prepare *Dhatryavaleha* and to see its analytical parameter standards

Properties of Dhatryavaleha

Name of the Drug	Rasa	Guna	Veerya	Vipaka
<i>Vamsalocana</i>	<i>Madhura, kashaya</i>	<i>LaghuRuksha</i>	<i>Sita</i>	<i>Madhura</i>
<i>Shunthi</i>	<i>Katu</i>	<i>Guru</i>	<i>Usna</i>	<i>Madhura</i>
<i>Madhuyasti</i>	<i>Madhura</i>	<i>Guru Snighda</i>	<i>Sita</i>	<i>Madhura</i>
<i>Pippali</i>	<i>Katu</i>	<i>Laghu Snigdha</i>	<i>Usna</i>	<i>Madhura</i>
<i>Draksa</i>	<i>Madhura</i>	<i>Guru Snighda Mrdu</i>	<i>Sita</i>	<i>Madhura</i>
<i>Ikshu (Sharkara)</i>	<i>Madhura</i>	<i>Guru Snigdha</i>	<i>Sita</i>	<i>Madhura</i>
<i>Aamalaki</i>	<i>Amla pradhana, pancharasa (except lavana)</i>	<i>Guru,sheeta</i>	<i>Sita</i>	<i>Madhura</i>

mentioned in standard operative procedure protocol of *Avaleha kalpana*.

Aim :

- Study the literature on *Avaleha* from Sharangadhar samhita
- Study the analytical parameters of *Dhatryavaleha*

Materials & Methods:

Ingredients: *Vamshalochan* -288 gm, *Shunti*-288 gm,*Madhuyashti*-288 gm, *Pippali*-2304 gm, *Draksha*-2304 gm,*Sharkara*-7200 gm,*Dhatry phala swarasa*-150 liter,*Madhu*-2304 g.

Method of Preperation :

- *Amalaki* are taken and seeds are separated and *swarasa* is prepared.
- All the drugs are powered fine.
- In a vessel *amalaki swarasa* along with all choornas are kept boiling on low flame and boiled till *avaleha* consistency.
- After cooling *madhu* is added and *avaleha* is filled in the container and smeared with ghee.
- Total 20 kg *avaleha* is prepared.

Results:**Analytical study:**

The organoleptic characters like appearance, taste, odour of *Dhatryavaleha* and Physico chemical analysis like pH, fat content, solid content, Total ash, Acid insoluble ash, Total sugar, Reducing sugar, Non reducing sugar have been done.

Organoleptic characters of Dhatryavaleha

Sl no	Parameters	Dhatryavaleha
1.	Color	Dark brown
2.	Odour	Characteristic
3.	Taste	Sweet, sour after taste

Color, Odor, Taste of *Dhatryavaleha* was documented using sensory organs.

Physico-chemical analysis of Dhatryavaleha :

Sl no.	Parameters	Dhatryavaleha n=3 %w/w
1.	pH	3.69
2.	Fat content	4%
3.	Solid content	90.0
4.	Total ash	40.91
5.	Acid insoluble ash	8.18
6.	Total sugar	32.73
7.	Reducing sugar	2.56
8.	Non reducing sugar	0.64

Determination of pH

Preparation of buffer solutions: Standard buffer solution: Dissolved one tablet of pH 4, 7 and 9.2 in 100 ml of distilled water.

Determination of pH: 1 ml of sample was taken and make up to 10 ml with distilled water, stirred well and filtered. The filtrate was used for the experiment. Instrument was switched on. 30 minutes time was given for warming pH meter. The pH 4 solution was first introduced and the pH adjusted by using the knob to 4.02 for room temperature 30°C. The pH 7 solution was introduced and the pH

meter adjusted to 7 by using the knob. Introduced the pH 9.2 solution and checked the pH reading without adjusting the knob. Then the sample solution was introduced and reading was noted. Repeated the test four times and the average reading were taken as result.

Total fat 1 g of the sample (*Dhatryavaleha*) mixed with 4gm of silica and was introduced into a thimble and placed it in a soxhlet fitted with a condenser. Taken 90 ml of petroleum ether (B.P. 40 - 60°C) in the 150 ml RB flask and boiled for 6 hours. The extract was taken in a

pre-weighed conical flask and petroleum ether was evaporated on a water bath. Removed the traces of petroleum ether in vacuum pump. Taken the weight of fat to constant weight.

Total Ash 2 g of sample was incinerated in a tared platinum crucible at temperature not exceeding 450°C until carbon free ash is obtained. Percentage of ash was calculated with reference to weight of the sample.

Acid insoluble Ash To the crucible containing total ash, add 25ml of dilute HCl and boil. Collect the insoluble matter on ashless filter paper (Whatmann 41) and wash with hot water until the filtrate is neutral. Transfer the filter paper containing the insoluble matter to the original crucible, dry on a hot plate and ignite to constant weight. Allow the residue to cool in suitable desiccator for 30 mins and weigh without delay. Calculate the content of acid insoluble ash with reference to the air dried drug

Reducing and non reducing sugar 5 g of sample (*Dhatryavaleha*) was taken in a 250 ml volumetric flask and 200 ml of water was added. Slight excess solid basic Lead acetate was added to remove tannins and made up to the mark without disturbing the solution by adding water. Shaken and filtered. Slight excess of solid Sodium oxalate was added to remove excess of basic Lead acetate, shake and filtered. This filtrate was used for the estimation of reducing sugar.

Reducing sugar: Take the sugar solution in a 50 ml burette. Preliminary titration: 10 ml of Fehling's solution was pipette into a 250 ml conical flask, from the burette, 15 ml of the sugar solution was added. The liquid boiled on asbestos-covered gauze and further quantities of the sugar solution was added (One ml at a time) at 10 to 15 second intervals to the boiling liquid until the blue colour is nearly discharged. 3-5 drops of aqueous Methylene blue solution (1%) was added and

continued the titration until the indicator is completely decolorized. Accurate titration: The titration repeated, before heating, almost all of the sugar solution required to effect reduction of copper added. Gently boiled for two minutes. 3-5 drops of Methylene blue indicator was added and the titration was completed within a total boiling time of three minutes. At the end point all the blue colour should be discharged and the liquid should be red. The proportions of the various sugars, equivalent to 10 ml of Fehling's solution are taken from the table. Total Sugar: 20ml of reducing sugar solution was taken and 10ml of Conc Hcl was added and kept aside over night. Neutralized with approximately 1M Sodium hydroxide solution or with solid sodium carbonate and made up to 100 ml in a volumetric flask. Determined the total sugar content by the titrimetric method described above. The experiment was repeated twice and the average value was taken.

DISCUSSION:

Avaleha kalpana is *upakalpana* of *kwatha kalpana*^[3] is one among the widely used dosage forms in Ayurveda. It is considered as one among the *panchavidha Kashaya kalpana*. Its appreciable qualities like long shelf life, easy administration, good taste, high nutrient contents, better potency with this made it more acceptable and popular^[4].

Different types of *Avaleha* are explained in Ayurvedic samhita for different diseases. *Avaleha* is semisolid form of medicine. In Charak Samhita, Vagbhata Samhita and Sharangadhar Samhita have explained *Avaleha kalpana*. As it is commonly used in all age groups. *Dhatyavaleha* is an herbal formulation and most of the drugs are *Guru*, *Snigdha Guna*, *Sheeta Veerya*, *Madhura Rasa*, *Madhura Vipaka*. Standardization is an essential measurement for ensuring the quality control of the herbal drugs. Quality

control parameters are necessary to establish safety, efficacy. The organoleptic characters of *Dhatryavaleha* are dark brown colour, characteristic odour, and sweet, sour after taste. Physico-chemical parameters like pH, fat content, solid content, Total ash, Acid insoluble ash, Total sugar, Reducing sugar, Non reducing sugar. pH of acidity due to *amalaki swarasa* and chemical constituent present in formulation. Total ash and Acid insoluble ash is important to illustrate the quality and purity of formulation.

CONCLUSION:

The present study reveals that quality of *Dhatryavaleha* as per pharmaceutical analytical parameters, which helps in explaining the quality of formulation. In the present work, the obtained results were found within normal prescribed limits.

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Conflict of Interest: No

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