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ANALYTICAL EVALUATION OF *HARIDRADI LEPA*

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ABSTRACT

Haridradi Lepa is a herbo-mineral formulation explained in *Bhavaprakasha Nighantu* under *granthi/ arbuda chikitsa*. It is having ingredients like *mulaka, shankha* & *haridra.* The pharmaceutical procedures will render some new qualities in an end product which is later analyzed and understood by physico-chemical analysis Hence the detailed analytical study of *Haridradi Lepa* was done at S.D.M. Centre for Research in Ayurveda and Allied Sciences, Udupi. Organoleptic characteristics like color, odor, taste, touch and appearance were recorded along with the evaluation of analytical parameters like Loss on drying at 105˚C, Total ash, Acid insoluble ash, Water soluble ash, Alcohol soluble extractive, Water soluble extractive, Total fat, Rancidity test, Determination of pH, Angle of Repose, Bulk density, Tap density, Hausner's Ratio, Carr's Index**.** The study showed satisfying results with respect to standard parameters showing genuine quality of the drugs and its efficacy.

KEYWORDS: *Arbuda*; *Haridradi Lepa*, herbo-mineral, Physico-chemical parameters.

INTRODUCTION

The main aim of Ayurveda is prevention of diseases & promoting health. *Bheshaja* being one among *chikitsa chatushpada*, it is necessary to standardize in order to achieve expected results. Analytical evaluation is the important intermediate step involved after the pharmaceutical production. Any formulation before using clinically it is mandatory to

undergo a certain laboratory procedures to evaluate its strength & potency by means of methods explained in contemporary science.

It is a significant step to check an adulteration, purity & genuinity of the product to ensure safety to consumers. The analytical parameters give an idea of how the medicine works inside the body. Its physico-chemical nature, quality, purity, safety, efficacy, etc. can be analyzed by these tests. It also briefs regarding the active constituents present in it & its percentage.

Haridradi Lepa is a herbo-mineral formulation explained in *Bhavaprakasha Nighantu*[1] under *granthi/ arbuda chikitsa.* It is a powder type of dosage form. The sample was evaluated in terms of organoleptic and analytical parameters & the results were recorded.

AIMS AND OBJECTIVES

To perform detailed analytical study of *Haridradi Lepa.*

MATERIALS AND METHODS

Haridradi Lepa was subjected to analytical study at S.D.M Centre for Research in Ayurveda and Allied Sciences, Udupi.

Pharmaceutical Preparation

Haridradi Lepa was prepared according to the reference of *Bhavaprakasha Nighantu*. *Mulaka Kshara* is prepared according to general method of preparation of *kshara*. *Shankha churna* is prepared after its *shodhana* in *kanji*. Then *Haridra churna* is prepared. Equal quantity of *mulaka kshara, haridra churna* & *shankha churna* is triturated to a homogenous mixture converting to *lepa churna.*

Analytical Study

The physico-chemical analysis of the sample of *Haridradi Lepa* was done at S.D.M. Centre for Research in Ayurveda and Allied Sciences, Udupi. Organoleptic characteristics like color, odor, taste, touch and appearance were recorded along with the evaluation of analytical parameters like Loss on drying at 105˚C[2], Total ash[2], Acid insoluble ash[2], Water soluble ash[2], Alcohol soluble extractive[2], Water soluble extractive[2], Total fat, Rancidity test, Determination of pH[3], Angle of Repose[4], Bulk density[4], Tap density[4], Hausner's Ratio[4], Carr's Index[4] according to the standard procedures.

RESULTS

Organoleptic characteristics of *Haridradi Lepa*.

- Appearance: Powder
- Color : Dark brick red
- Odor : Characteristic smell
- Taste : Saline
- Texture : Soft/ fine powder

Table 1: Results of Physico-chemical analysis of *Haridradi Lepa.*

Parameters	Results n=3 %w/w
Loss on drying	5.57 ± 0.01
Total ash	65.70 ± 0.65
Acid insoluble ash	0.00 ± 0.00
Water soluble ash	32.80 ± 0.00
Alcohol soluble extractive	5.59 ± 0.00
Water soluble extractive	52.34 ± 0.00
Total fat	0.23%
Rancidity	Fat is not oxidised
pH	9.0

Table 2: Powder flow property of *lepa churna.*

Parameter	*Haridradi Lepa*
Angle of repose	36-40
Bulk density	0.8
Tapped bulk density	1
Hausner's ratio	1.25
Carr's index	20

DISCUSSION

Analytical study will help in standardizing the drug. It also helps in understanding the pharmacokinetics and pharmacodynamics of the drug to some extent.

The *lepa* was in fine powder form with saline taste. It was soft to touch having dark brick color with characteristic odor of the ingredients. The analytical parameters were as per standard parameters of *Lepa*.

The Loss on Drying indicate the moisture content is less, which means the chances of deterioration either physically or chemically is reduced. It also indicates the prolonged shelf life. Total ash value represents the inorganic material present in the drug which denotes its quality and purity. It may also indicate the result of incomplete burning of *mulaka* during

kshara preparation. The acid insoluble ash was nil indicating the absence of siliceous content in *lepa*. This implies the raw drugs were of good quality. The water soluble ash is the water soluble constituents of the given sample. The water soluble extractive value was more than alcohol soluble extractive. It denotes the active chemical constituents present in the drug proposing that absorption is more in aqueous media i.e. water soluble constituents are more extracted. Hence the bioavailability is also more. Total fat was very negligible. Hence the rancidity test was negative indicating the shelf life of *lepa churna* can enhanced as there was no sign of oxidation. The pH gives an idea of acidity or alkalinity of a drug. It was found to be alkaline in nature. The *shankha* & *mulaka kshara* were the reason for alkalinity. The angle of repose suggests the *lepa* having fair flow properties and does not require any aid. There was not much difference between bulk & tap density. Hence the hausner's ratio was suggestive of *Haridradi Lepa* having fair free flowing properties. The Carr's index was found to be 20.

CONCLUSION

All the data evolved from the analytical study helps in standardizing the formulation & maintaining its quality and efficacy. It will also help in understanding the purity of the product. It gives an idea regarding the clinical efficacy of the drug. All the qualitative and quantitative parameters of *Haridradi Lepa* found to be satisfied. Further can be confirmed with preclinical & clinical studies.

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