

PREPARATION AND EVALUATION OF HARIDRA LEHYA: AN AYURVEDIC
TRADITIONAL DOSAGE FORM FOR GENERAL DISABILITIES

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ABSTRACT

Haridralehya is an important formulation in Ayurveda. In this formulation, main ingredient is "Haridra (turmeric)" which is a vital herb in ayurvedic medicine whose spice form can be recognized by its dazzling yellow colour and bitter taste. The rhizome of the herb used fresh or dried, has a most of medicinal benefits. It acts as a carminative and also enhances the complexion and skin tone. Apart from that haridra can be used to combat liver damage, respiratory disorder and ulcers. Haridra contains curcumin, curcuminoids, volatile oil, resin etc. It has been reported that curcumin contributes towards the anti-oxidant, anti-inflammatory and cytoprotective properties and other therapeutic activities. The present study was undertaken to prepare haridralehya containing ghee, honey, jaggery and crude drug (haridra) powder. This work has been done for the formulation using standard procedures and evaluation using reference values for performing macroscopic, microscopic evaluation, and physicochemical parameters including extractive value, few chemical tests for presence of alkaloid, sugar and curcumin and their presence were confirmed.

Keywords: Ayurvedic formulation, Haridra Lehya, Turmeric, Curcumin.

INTRODUCTION

The knowledge and authentic literature about life is Ayurveda. According to Charaka Maharishi, Ayurveda is infinite and not created by anybody. The principle of Ayurveda is based mainly on the characteristics of nature. However, Ayurveda does not rule out any substances from being used as a potential medicine. Ayurvedic formulations are broadly divided into two groups which are *Kasthausadhi* (predominantly plants drugs)

and *Rasausadhi* (predominantly metals & minerals)^[1,2,3]. There are several categories of *kasthausadhi* formulation such as *Asavaristra*, *Avleha*, *Churna*, *Taila* etc., and of *Rasausadhi* such as *Bhasma*, *Pisti*, *Lauha*, *Kapibadhkva*, *Rasayana* etc.,. The Ayurvedic drugs are divided from vegetable sources from the various parts of the plant like root, leaf, flower, fruit, extrude or plant as a whole. The life process in the harmonious relationship between sensory and motor organs,

nerves and impulses. If this harmony is disturbed some deficiency is noticed which is termed as Dosha or defect. The dosha are classified into three groups according to whether they are gastric, bilious or phlegmatic as called in Ayurveda as vaata, pitta and kapha.

Vaata: vaata is that primal constituent of the living body, whose structure is Akaasha-Vaayu and whose function is raajasic, it being concerned with the production of those physical and mental processes which are predominantly raajasic (activating or dynamic) in nature.

Pitta: pitta is that primal constituent of the living body, whose structure is tejas and whose function is saatwic, it being concerned with the production of those physical and mental processes which are predominantly saatwic (balancing or transformative) in nature.

Kapha: Kapha is that primal constituent of the living body, whose structure is prithvi and whose function is taamasic, it being concerned with the production of those physical and mental processes which are predominantly taamasic (conserving or stabilizing) in nature. These three elements are collectively known as Tridosha.

Ayurveda usually prescribed different types of herbal preparation, example powders, pills, decoctions, fermented liquids, medicated oils, ghee etc. Drugs were supposed to act from the body through the influence of their rasa (taste), vipaka (post digestive defect), virya (potency), and prabhava (special action). In Ayurveda the different forms in the usage of drugs are called as Bhashajakalpanas or Oushadajakalpanas. These include Swarasa (fresh juice), Kalka (fresh drug paste), Hima (cold decoction) Kwaatha or kashaya (water extractor decoction), Phaanda (cold infusion).

MATERIALS AND METHODS

Crude turmeric, Honey, Ghee and Jaggery were purchased from local market. Hager's reagents, Barfoed reagent, Wagner reagent, Con. sulphuric acid, Dil. iodine solution, Sodium hydroxide and Glycerine were used for testing of phytoconstituents present in the formulation. All these chemicals are analytical grade. Mixture grinder, Stainless steel container, Hot air oven, Microscope, Water bath, Hot plate and Digital balance, Beaker (50 ml), Stopped flask, Pipette (5 ml), Muslin cloth, Glass rod, Sieve no.85, Watch glass and Funnel are employed as glass ware

and equipments. These are obtained from our own laboratory.

PREPARATION OF POWDER

50 gm of crude turmeric was purchased from the local market, peeled off, cut into small pieces and air dried ^[4]. The dried materials was powdered by mixture grinder and passed through sieve no. 85.

PRELIMINARY PHYTOCHEMICAL TEST ^[5]

To the powdered crude drug, few drops of water was added and mixed properly and observed under microscope for cellular structure.

Table 1: Result of Macroscopic characters of Haridra

Characters observed	Results
Colour	Yellowish-brown
Odour	Characteristic
Taste	Slightly bitter
Shape	Round turmeric rhizome are oblong, while long variety is cylindrical and short branched
Size	Rhizomes are 5 to 10 mm

MICROSCOPIC CHARACTERS OF TURMERIC POWDER

Powder is uniformly spread over the slide with the help of a thin brush with 1 drop of glycerine and observed under microscope

using 10X for eye piece and 45X for objective ^[6,7]. The histology of turmeric rhizome powder shows the outermost 4 to 6 layers of brick shaped parenchymatous cork, followed by cork cambium. The cortex consists of thin walled rounded parenchymatous cells containing scattered vascular bundles. Oleo resin cell with brownish contents are also observed throughout the ground tissue. Oil cells have suberised cell-walls. Vascular bundles are present in cortex and are collateral. Vascular bundles in pith region are scattered forming discontinuous ring under endodermis. Endodermis is well marked and starch grains (5 to 15 in diameter) are abundant. Main Characteristics observed for rhizomes are Fibres, Cork cells, Starch grains and Vessels.

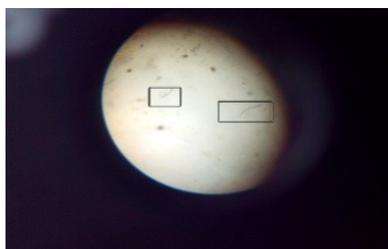
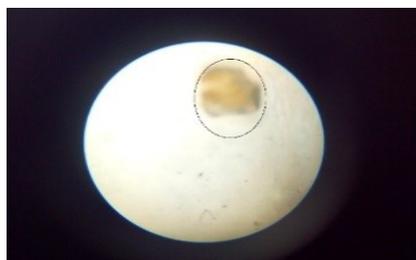
PREPARATION OF ARIDRALEHYA

Jaggery syrup is prepared first ^[8]. This is strained through a muslin cloth to remove all type of impurities. This syrup is boil moderately to attain a consistency (mrudupakka) relates to thready when pressed with two fingers or when it sinks in water without spreading. At this stage the powdered drug turmeric can be added slowly with various stirrings to make a homogenous semisolid preparation, ghee is

added to this step. Honey should be added only when the preparation is cold.

MICROSCOPY OF LEHYA PREPARATION

Take about 5 gm. of lehya wash with warm water; collect the sediment .Wash again the cold water.Mount in glycerine, add iodine solution and again mount in glycerine and observe under microscope ^[9]



**Fig 1: A: Parenchyma cell B: Fibres
C: Starch grains**

CHEMICAL TEST FOR CURCUMIN IN LEHYA^[10]

1. Treat the lehya with concentrate sulphuric acid orange or red colour developed indicating the presence of curcumin.

2. Treat the lehya with 10% sodium hydroxide red to violet colour developed indicating the presence of curcumin.

CHEMICAL TEST FOR ALKALOIDS AND SUGARS IN LEHYA^[11]

8 gm of Lehya was taken and added to 10 gm. distilled water. Heated on water bath for 10 minutes, cool and filter. Use this filtrate for following tests:

**Table 2: Result of chemical test for alkaloids
and sugars in lehya**

Reagent added	Observation
Hager's reagent	Yellow precipitation
Wagner's reagent	Brown precipitation
Barfoed's reagents	Red precipitation

WATER SOLUBLE EXTRACTIVE VALUE ^[12]

Take 5 gm of lehya and add 5ml of distilled water at 80⁰C in a stoppered flask. Shake well allow to stand for 10 min. Cool and filter. Transfer 5 ml of the filtrate to tared evaporating dish. Evaporate the solvent on a water bath, continue drying for 30 min. Finally dry in a hot air oven for 2 hrs and weigh the residue and calculate percentage of water soluble extractive value. The water soluble extractive was found to be **8.2% w/w**. So, it is not more than 11% w/w according to API.

The Haridralehya preparation confirms the presence of carbohydrate, alkaloids, starch, and its main active constituent curcumin. It also confirms its water soluble extractive value which ranges within the standard value as per pharmacopoeia, the water soluble extractive method is applied to drugs which contains water soluble active constituent of crude drugs such as tannins, sugars, plant acids, mucilage and glycoside etc. The extract obtained by exhausting crude drugs is actually indicative of approximate measures of their chemical constituents.

CONCLUSION

This work only highlighted the basic preliminary steps for the evaluation of lehya such as few chemical tests namely Wagner's reagents, Hager's reagent, Barfoed's reagent, water soluble extractive value, concentrated Sulphuric acid test (for curcumin) and 10% sodium hydroxide solution test for curcumin. Other macroscopy and microscopy for powder drug and preparation were also conducted which confirmed the presence of fibers, vessels, parenchyma cells, cork cells and starch grains. Other than these various spectral analyses like UV, IR, NMR, mass spectroscopy can also be performed. As per API the prepared lehya can be store for

one year as it contains ghee which acts as natural preservative and can be administer orally at any time. This is preferable mainly for children and old age patients as it is sweet in taste and easily swallowable.

REFERENCES

1. Kapoor L.D. Introduction notes on fundamental principles of Ayurvedic pharmacology. Ayurvedic medicinal plants, page:-349-351.
2. Madhu C. Divakar. Plant drug evaluation- A laboratory guide, second edition, Page no: 111-116.
3. Bhushan Patwardhan, Ashok D. Vaidya B. and Mukund Chorghade. Ayurveda and natural products drug discovery. Pharmaceutical Sciences Division, D&O Pharmachem, Inc., 14 Carlson Circle, Natick, MA 01760-4205, USA.
4. Khandelwal KR, Practical Pharmacognosy- Techniques and Experiment, 19th edition, ISBN- 978-81-85790-30-5, page no: - 16-17, 162-165,157-158, 184.
5. Curcuma longa information from NPGS/GRINs ars-grin. Retrieved 2008-3-04.
6. Kokate CK, Purohit A, Gokhale SB. Pharmacognosy 5th edition, page no:- 14.133-14.135.

7. Anonymous, The Ayurvedic Pharmacopoeia of India. Part - II (Formulation) Vol – I, First Edition, Government of India, Ministry of Health And Family Welfare, Department of Ayurveda, Yoga & Naturopathy, Unani, Siddha and Homoeopathy, New Delhi, 2007, page no:-1- 35.
8. Madhu C. Divakar. Plant drug evaluation- A laboratory guide, second edition, Page no: 111-116.
9. Harshal Pawar, Mugdha Karde, Nilesh Mundle, Pravin Jadhav and Kavita Mehra. Phytochemical Evaluation and Curcumin Content Determination of Turmeric Rhizomes Collected From Bhandara District of Maharashtra.(India). Med chem, Vol: 4(8), page no-588-591.
10. Kadam PV, Yadav KN, Patel FA, Karjekar FA, Patidar MK, Patil MJ. Pharmacognostic, phytochemical and physicochemical studies of *Curcuma longa* linn. Int J Pharm 2013, Page no: 514-520.
11. Chander Paul Kashya , Vikrant Arya, Ashish Arora. An approach towards adopting pharmaceutical and analytical standard operative procedures for “Vasavaleha”, a classical Ayurvedic semisolid dosage formulation. Journal of Pharmacognosy and Phytochemistry 2014; page no:-53-57..
12. Indian Pharmacopoeia, Method 2, vol- 2, 1996,A-3.37 [A-53].