EUROPEAN JOURNAL OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES
http://www.ejbps.com

ISSN 2349-8870
Volume: 6
Issue: 10
367-370
Year: 2019

PHARMACOGNOSTIC, PHYSICOCHEMICAL, AND PHYTOCHEMICAL ANALYSIS OF *HARIDRADI CHURNA*

Shraddha Chaudhary*[1], Dr. D. B. Vaghela[2] and C. R. Harisha[3]

[1]M.S. Scholar, Department of Shalakya Tantra.
[2]I/C HOD of, Department of Shalakya Tantra.
[3]Head, Pharmacognosy Lab., IPGT and RA, Gujarat Ayurved University, Jamnagar, India.

***Corresponding Author: Dr. Shraddha Chaudhary**
M.S. Scholar, Department of Shalakya Tantra.

Article Received on 22/07/2019 **Article Revised on 12/08/2019** **Article Accepted on 02/09/2019**

ABSTRACT

Background: Standardization of herbal medicines is essential to establish its identity, purity, quality, safety, and efficacy. This study reports on standardization of *Haridradi Churna* an *Anubhuta Yoga* for management of Tonsillitis. **Objective**: This study aimed to prepare the *Haridradi Churna* using authentic herb and establishing pharmacognostical, physicochemical and phytochemical standards for the formulation. **Materials and Methods**: *Haridradi Churna* was prepared and the prepared formulation was evaluated for pharmacognostical, physicochemical, and phytochemical parameters using guidelines of the World Health Organization and Pharmacopoeial Laboratory for Indian Medicines for quality control of herbal drugs. **Results**: *Haridradi Churna* was obtained as a coarse, fine, yellow, aromatic powder with astrigent taste. Water soluble extractive value of 46.05% and methanol solule extractive value of 32.40% were obtained in hydroalcoholic and petroleum ether, respectively. Ash values 42.54% acid insoluble ash 1.47%,loss on drying 10.54%, pH value (by pH paper) 9, were observed. No microbial load was detected in the formulation. Microscopic studies revealed the presence of various characteristic entities. Preliminary phytochemical screening confirms the presence of alkaloids, flavonoids, glycosides, fatty acids, terpenoids, sterols, tannins, proteins, and phenolic compounds. HPTLC study showed 05 spots at 254 nm with Rf values and 03 spots at 366 nm with Rf values. **Conclusion**: The various pharmacognostical, physicochemical, and phytochemical standards will help in quality control/quality assurance and maintaining batch to batch consistency in herbal drug industries so that maximum therapeutic efficacy can be achieved.

KEYWORDS: Pharmacognostic, physicochemical, phytochemical, *Haridradi Churna.*

INTRODUCTION

Polyherbal formulations, nowadays, are choices for the management of various diseases or disorders such as diabetes, hypertension, and hepatic diseases which requires therapy for the long duration of time. The use of herbal supplements has increased in the past decades due to high cost, decreased patient compliance, and associated toxicities of modern medicines. Tonsillitis is a very common prevalant disease seen specially during morbid seasonal variation which requires proper therapy to prevent inflammation and further complications. Modern drugs such as anti inflammatory, NSAIDS, antibiotics, analgesics etc. are advocated in treatment of tonsillitis. Moreover, routine uses of these drugs lead to GI tract disturbances and suppress the immunity.

Ayurvedic literature *Sarangdhar Samhita* has highlighted the concept of polyherbalism to achieve greater therapeutic efficacy. The active phytochemical constituents of individual herbs are insufficient to achieve the desirable therapeutic effects, but multiple herbs when combined in a particular ratio will give a better therapeutic effect and thus reduce the toxicity due to low concentrations of various phytochemicals.[1]

The active phytochemical constituents of individual herbs are insufficient to achieve the desirable therapeutic effects, but multiple drugs when combined in a particular ratio will give a better therapeutic effect and thus reduce the toxicity due to low concentrations of various phytochemicals. *Haridradi Churna* is prescribed in Ayurveda for management of Tonsillitis. Maximum therapeutic benefits from a polyherbal formulation can be expected only when a quality preparation is used. *Haridradi Churna* a compound preparation containing *Haridra* and *Tankana*. Both the constituent used in the formulation of *Haridradi Churna* possess pharmacological activities that either directly or indirectly help in the suppression of onset of Tonsillitis and thereby offer anti-inflammatory effects.

Plant materials are used throughout developed and developing countries as home remedies, over-the-counter drug products, and raw materials for the pharmaceutical industry and represent a substantial proportion of the global drug market. The majority of adverse events reported in relation to the use of herbal products and herbal medicines are attributed to poor quality of the product. The World Health Organization (WHO) appreciated and stressed the use of standardized formulations and issued guidelines for establishing identity, purity, quality, and efficacy for herbal materials, within the overall context of quality assurance and control of herbal medicines.[2]

This study was aimed to prepare *Haridradi Churna* using authentic herbs and establishing the quality control parameters. Physicochemical evaluation of component herb of the formulation, organoleptic, microscopic, phytochemical, and microbial load evaluations of *Haridradi Churna* was carried out as per the procedures prescribed by the WHO, Geneva, and Pharmacopoeial Laboratory for Indian Medicines, Department of AYUSH, to set standards for use by herbal industries to avoid batch to batch variations and to maintain quality and consistency.[3]

MATERIALS AND METHODS

Raw herbal materials [Table-1] were collected from Pharmacy, and authenticated in pharmacognosy laboratory, IPGT & RA, Gujarat Ayurved University, Jamnagar. Genuine samples of *Tankana Bhasma* was also collected from Pharmacy, Gujarat Ayurved University, Jamnagar.

Formulation of *Haridradi Churna*

Firstly *Haridra* was made into fine powder form and pass through sieve to separate the impurities. Then *Shuddha Tankana Bhasma* was taken and it was also made into fine powder form and pass through sieve. The two powders were mixed properly. The mixture was kept in air tight plastic bag.

Microscopic Study

Organoleptic and Microscopic studies of the prepared drug were done as per the guidelines of Ayurvedic pharmacopoeia of India. Little quantity of *Churna* dissolved in the distilled water and placed on slide adding with small quantity of water and observed first without stain then stained with phloro-glucinol and concentrated HCL. Microphotographs were taken under the carl zeiss trinocular microscope attached with camera.[4] The diagnostic features obtained were found to be complying with the standards mentioned at respective volumes of API.

Organoleptic Study

Haridradi Churna was evaluated for organoleptic characters like taste, odour and color, touch.[5]

Physico-chemical analysis

Preliminary physico-chemical parameters like Moisture content, Total solid content (in 10% sol.), Ash value, Acid insoluble ash, pH value, Water soluble extract, Methanol soluble extract, were carried out.[6]

HPTLC

Methanol extract of *Haridradi Churna* spotted on pre coated silica gel GF 254 aluminum plates by means of CAMAG Linomate V sample applicator fitted with a 100 µL Hamilton syringe. The mobile phase consisted of Toluene, Ethyl acetate and Acetic acid in a ratio of 7:2:1 v/v. After development densitometric scan was performed with a CAMAGT. L. C. scanner III in reflectance absorbance mode at 254 and 366nm under control of Win CATS Software.

RESULTS AND DISCUSSION

Preparation of Drug: *Churna* preparation was done by mixing coarse powder (sieve number 44) of raw material.

Table no.1: Ingridients of *Haridradi Churna.*

Sr No.	Sanskrit Name	Latin Name	Part
1.	*Haridra*	*Curcuma longa* Linn.	1
2.	*Shuddha Tankana*	Borax (Sodium pyro borate)	½

Organoleptic characters of *Haridradi Churna*

Organoleptic characters of contents of *Churna* like color, taste odour and touch were recorded separately and are mentioned. (Table-2).

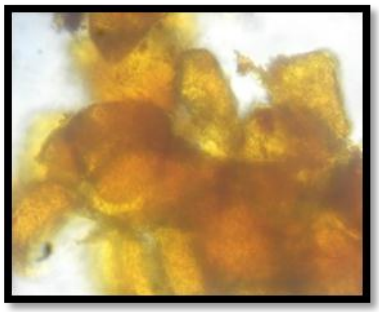
Table 2: Organoleptic Characters of *Haridradi Churna.*

Sr. No	Parameters	Sample-*Churna*
1	Colour	Yellow
2	Touch	Fine coarse
3	Odour	Aromatic
4	Taste	Astringent

Microscopic Study

The diagnostic characters of microscopic analysis of *Haridradi Churna* showed the Parenchymal cells of *Haridra*, *Starch grain of Haridra*, Fibre of *Haridra*, Annular vessles of *Haridra* ,Scalery form vessels of *Haridra*, Trichome of *Haridra*, Parenchymal cells with starch grains, Black content of *Tankana*, Crystal debris of *Tankana* which are shown in PLATE – 1.

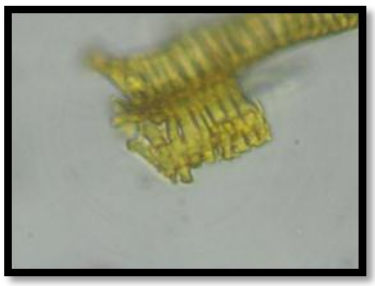
Plate 1: Microscopic evalution of *Haridradi Churna* Figure (1 to 9).



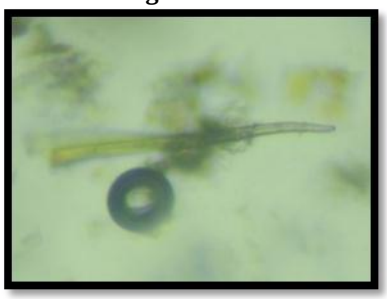
Parenchymal cells of *Haridra*

Starch grain of *Haridra*

Annular vessles of *Haridra*

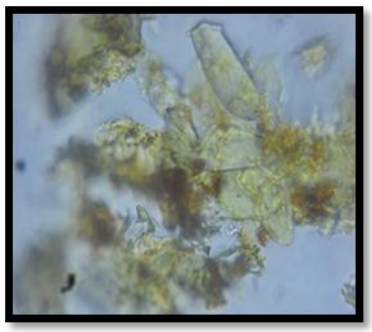


Scalariform vessles of *Haridra*

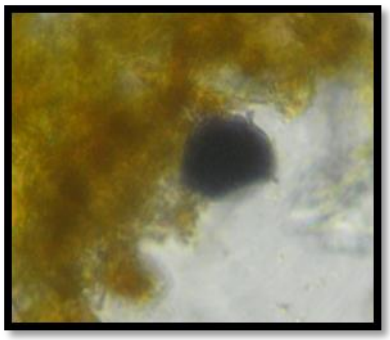


Trichome of *Haridra*

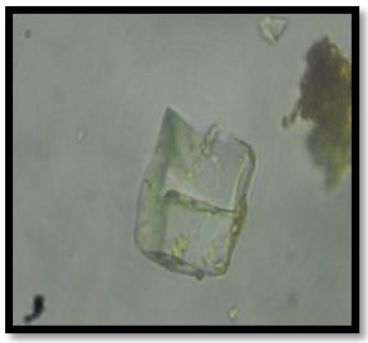
Fiber of *Haridra*



Parenchymal cells with starch grains



Black content of *Tankana*



Crystal debris of *Tankana*

Physicochemical tests

Physicochemichal parameters of *Haridradi Churna* was assessed with standard procedures and results are shown in Table 3.

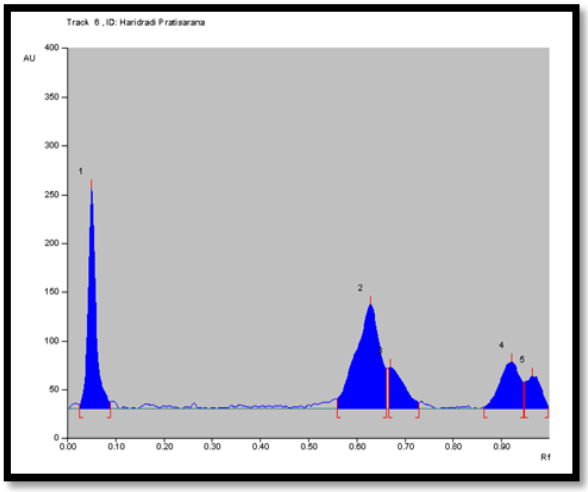
Table 3: Physico-Chemical parameters of *Haridradi Churna.*

S.NO.	Analytical Parameters	Results
		Haridradi Pratisarana
1.	Loss On Drying	10.54%w/w
2.	Ash Value	42.54% w/w
3.	Water Soluble Extract	46.05%w/w
4.	Methanol Soluble Extract	32.40%w/w
5.	Acid insoluble Ash	1.47%w/w
6.	pH (By pH Paper)	9

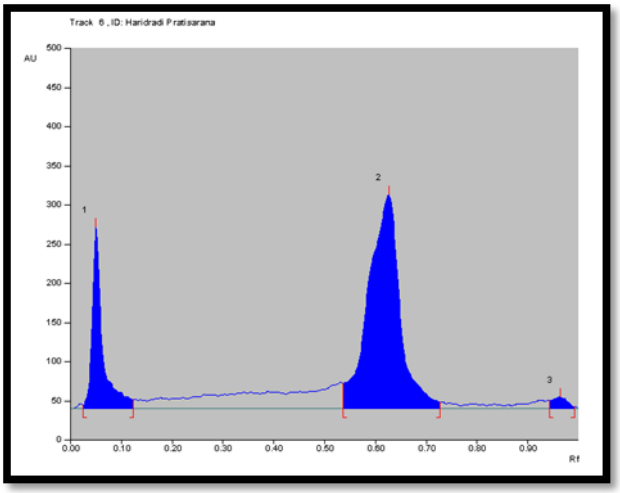
HPTLC study results

Chromatographic study (HPTLC) was carried out under 254 and 366 nm UV to establish fingerprinting profile. It showed 05 spots at 254 nm with R_f values and 03 spots at 366 nm with R_f values recorded which may be responsible for expression of its pharmacological and clinical actions[7] (PLATE-2, Table- 4).

Plate 2:HPTLC study of *Haridradi churna.*



1.1 : Peak display at 254 nm



1.2: Peak display at 366 nm

HPTLC study of *Haridradi churna.*

Sr. No.	Samples	Conditions	No. of Spots	R_f
1.	*Haridradi Pratisarana*	Short UV–254 nm	5	0.05,0.63,0.67,0.92,0.96
		Long UV–366 Nm	3	0.05,0.63,0.96

CONCLUSION

The various pharmacognostical, physicochemical, and phytochemical standards thus obtained from this study will help in establishing the identity, purity, quality, safety, and efficacy of *Haridradi Churna*. These standards can be used by various industries and laboratories engaged in research and production of herbal formulations to control the quality of their products and help in maintaining batch to batch consistency so that maximum therapeutic efficacy can be achieved.

REFERENCES

1. Parasuraman S, Thing GS, Dhanaraj SA. Polyherbal formulation: Concept of ayurveda. Pharmacogn Rev., 2014; 8: 73-80
2. Kaushik R, Jain J, Mazumdar A, Singh L. Studying the pharmacological basis of an antiepileptic Ayurvedic formulation-Sarasvata Churna. Int J Green Pharm., 2017; 11: 1-7.
3. Lohar DR. Protocol for Testing Ayurvedic, Siddha and Unani Medicines. Ghaziabad: Pharmacopoeial Laboratory for Indian Medicines, 2007; 1-146.
4. Wallis TE. Text book of Pharmacognosy. 5th ed. New Delhi: CBS Publishers & Distributors., 2002; 123-32: 210-5.
5. Identification of Novel Anti-inflammatory Agents from Ayurvedic Medicine for Prevention of Chronic Diseases: "Reverse Pharmacology" and "Bedside to Bench" Approach. Curr Drug Targets., 2011; 12(11): 1595-1653. http://dx.doi.org/10.2174/138945011798109464
6. Anonymous. The Ayurvedic Pharmacopoeia of India. part, Appendices 1st ed. New Delhi: Govt. of India Publication, 2008; 2(2): 233-5.
7. Stahl E; Thin- layer chromatography a laboratory hand book, 2nd edition. Springer-Verlag, Newyork, 1969; 125-133.