ISSN: 2322 - 0902 (P)
ISSN: 2322 - 0910 (O)

International Journal of Ayurveda and Pharma Research

Research Article

PHARMACOGNOSTICAL AND PHYTOCHEMICAL ANALYSIS OF *RASAYANA CHURNA VATI* FOR QUALITY CONTROL - AN AYURVEDA FORMULATION

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ABSTRACT

Rasayana churna was mentioned by *Acharya Vagbhatta* for rejuvenation of body tissue. *Rasayana* properties of this combination revitalize the unhealthy tissue on systemic level. *Rasayana Churna* is a polyherbal formulation contacting 3 ingredients i.e., *Amalaki*, *Guduchi* and *Gokshura* are well known drugs for its rich in antioxidant, immunomodulator and purifactory action. Repeated stress injury in visual system is major cause of Computer Vision Syndrome- a new milliner disorder. A study conducted as randomized clinical trial showed that *Rasayan churana* significantly improves a group of symptoms in Computer Vision Syndrome.

The present study was carried out to standardize the finished product of *Rasayana Churna Vati*. It includes Authentication, Organoleptic properties, physic-chemical parameters, assay of active and qualitative HPTLC analysis to confirm entity, quality and purity. All results were compared with Ayurvedic Pharmacopoeial standard. The presence of rosette crystals of calcium oxalate, lignified tissues, prismatic crystals, reticulate vessels, starch grains oval, tannins, trichomes were the characteristic features observed in the microscopy of the prepared drug. Phyto-chemical analysis showed Loss on drying 1.87% w/w, Total ash 4.35% w/w, water soluble extract 34.73% w/w, Acid insoluble ash 0.73% w/w, Alcohol soluble extractive 14.34% w/w & pH 3.4. Identification of constituents of *Rasayana Churna Vati* was done by HPTLC scanning at 254 and 366mm gives positive test for *Guduchi*, *Gokshura* and *Amalaki*.

KEYWORDS: *Rasayana churna vati,* Quality control, Standarization.

INTRODUCTION

Ayurveda is an integral and most ancient form of medical system related to wholesome cure for welfare of mankind. New generation is dependent on Video display terminals (VDTs) for each kind of work. Digital stress injury in visual system due to VDTs results in Computer vision syndrome[1]. *Rasayan Churna Vati* is described in *Ashtanga Hridaya* as *Rasayana* which is used for strength of hair and gives long healthy life[2]. *Rasayana churna* also known for its ocular health booster (*Chakshushya*) action[3]. *Rasayan Churna Vati* was selected for clinical evaluation in Computer Vision Syndrome and suspected to cure the repeated stress injury due to VDTs by the recover the tissue health in ocular system.

Now a day's manufacturing of Ayurvedic drugs become the part of manufacturing business. Than the evaluation of drugs by standard parameters for quality control become a mandatory part of study to figure out unbiased results. The establishment of standards of authentication and quality of these drugs is first step to make sure for safety and efficacy of these drugs. Keeping these essentials in consideration, this study has been undertaken for quality control to overcome market variations in traditional preparation of *Rasayana Churna*.

MATERIALS AND METHODS

Collection of Raw Materials

The raw drugs for the study were procured from the Hansa Pharmacy Premnagar Asram, Haridwar Uttarakhand. The final product i.e., *Rasayana Churna Vati* was prepared in the Hansa Pharmacy Premnagar Asram, Haridwar Uttarakhand. The ingredients and parts used in the formation of *Rasayan Churna Vati* are listed in (Table 1.)

Pharmacognostical Evaluation

Organoleptic Study

Organoleptic characters like texture, taste, odour and colour etc**.** of *Rasayana Churna Vati* powder was evaluated in this study [4] (Table 2)**.**

Powder Microscopic Study

The *Rasayana Churna Vati* was dissolved in small quantity of distilled water, first observed without stain then stained with phloro-glucinol and concentrated HCl. Powder microscopy of *Rasayana Churna Vati* compound powder was also carried out and microphotographs were taken by Carl zeiss trinocular microscope [5,6-8].

Phyto-chemical Analysis of Drug

Rasayan Churna Vati was analyzed by using qualitative and quantitative parameters at International Testing Center, a Govt. approved laboratory and industrial research center (Lic. No. Lab3D1 (88) / Lic No. 2-ISM-HR) under report no. AY-26S0315 86, Industrial Area, Phase 1, Panchkla Haryana India.

Phyto-chemical analysis of drug were carried out by Loss on Drying, Water Soluble Extractive (WSE), Total Ash Value (AV), Acid insoluble Ash, pH Value, High Performance Thin Layer Chromatography [9] (Table No. 3)

RESULTS AND DISCUSSION

Organoleptic Parameters

The organoleptic characters of Ayurvedic drugs are evaluating the qualities of preparation by color, touch, fineness, taste, odor, etc. were noted through *Jyanendriya* (sense organs) and it is providing the idea about the quality of different formulations without using chemical tests. The final product was made of fine powder form. Organoleptic parameters of the formulation are mentioned in Table 2.

These characters are corresponds to the all active ingredients among which most of have *Tikta and Kashaya Rasa.*

Pharmacognostical Evaluation

Diagnostic characters of finished product under the microscope were seen and presence of all ingredients showed their different characters.

Stone cells, pitted vascular fibres, tracheids, isodiametric parenchyma cells of *Amalaki*

Simple, ovoid starch grains, prismatic crystal of *Guduchi*, prismatic crystals of calcium oxalate, rosette of calcium oxalate crystals, unicellular trichomes of *Gokshura* were observed. (Table 4, Fig 1-11)

Physico-chemical Parameters

Rasayana Churna Vati was evaluated for various physico-chemical parameters. Results revealed that moisture content and pH value of *Rasayana Churna* of was in prescribed limits established by previous standardization studies of it. The results are shown in Table 3.

High Performance Thin Layer Chromatography (HPTLC)

Chromatographic study (HPTLC) was carried by mobile phase of Toluene: Ethyl acetate: Formic acid 80: 10:10 scanning under 254 and 366nm UV to create finger printing profile by Densitogram and peak list. It showed 2 peaks spots and phyto components with Rf values 0.35, 0.51 were recorded. (Table No. 5, Fig. No. 12).

Table 1: Ingredients of *Rasayana Churna Vati*

Content	Latin Name	Part Used	Ratio	Form
Guduchi	*Tinospora cardifolia*	Stem	1	Powder
Gokshur	*Tribulus terrestris*	Fruit	1	Powder
Amlaki	*Emblica officinalis*	Fruit	1	Powder

Table 2: Organoleptic Parameters of *Rasayan Churna Vati*

Properties	***Rasayana Churna Vati***
(*Rupa*) Colour	Brown coloured Tablet
(Rasa) Taste	Bitter & Astringent
(Gandha) Odour	Odour of herbs
(Sparsha) Touch	Fine

Table 3: Physico-Chemical parameters of *Rasayana Churna vati*

Sr.No.	Test	Result
1.	Loss on Drying	1.87% w/w
2.	Water Soluble extractive	34.73% w/w
3.	Total Ash	4.35% w/w
4.	Acid insoluble Ash	0.73% w/w
5.	Alcohol Soluble extractive	14.34% w/w

Table 4: Pharmacognostical Analysis of *Rasayana Churna vati*

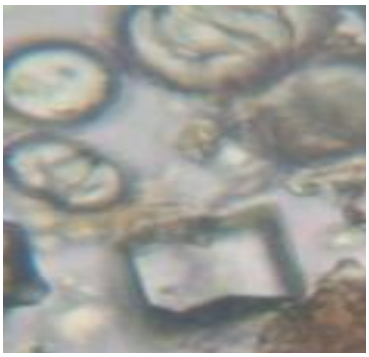


Fig 1. Prismatic Crystals

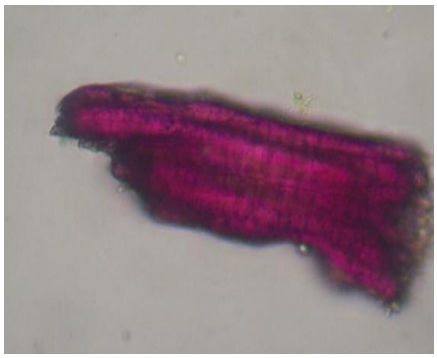


Fig 2. Sclerrid

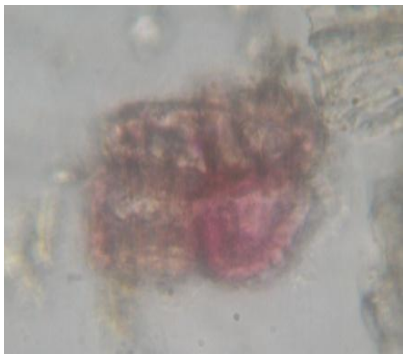


Fig 3. Stone Cells

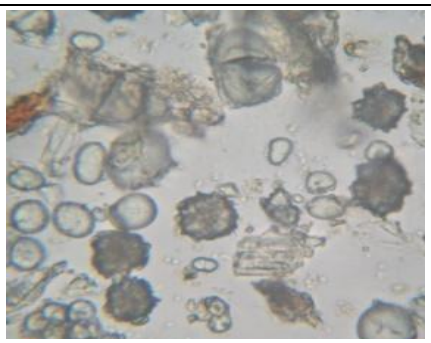


Fig 4. Rossete crystals

Fig 5. Tricome

Fig 6. Tricomes

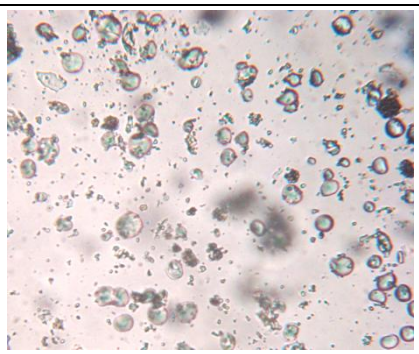


Fig 7. Starch grain

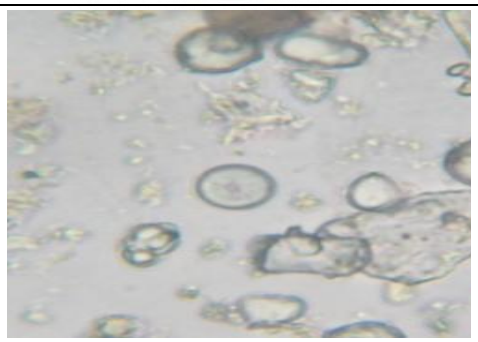


Fig 8. Simple Starch Grains

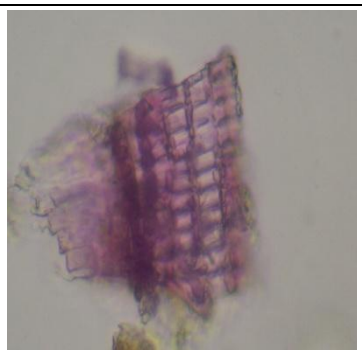


Fig 9. Pitted vascular Fiber

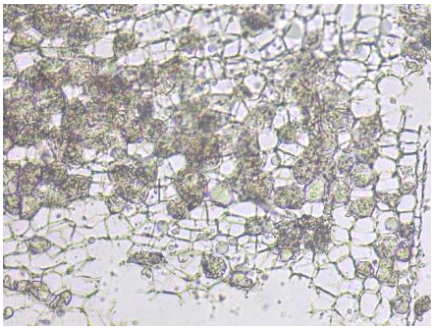


Fig 10. Parenchymal cells

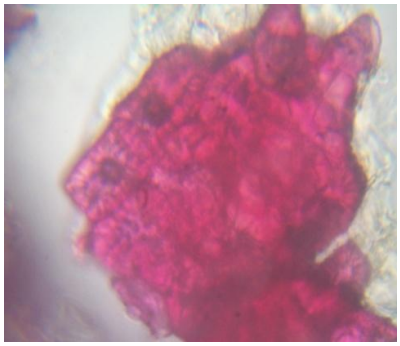
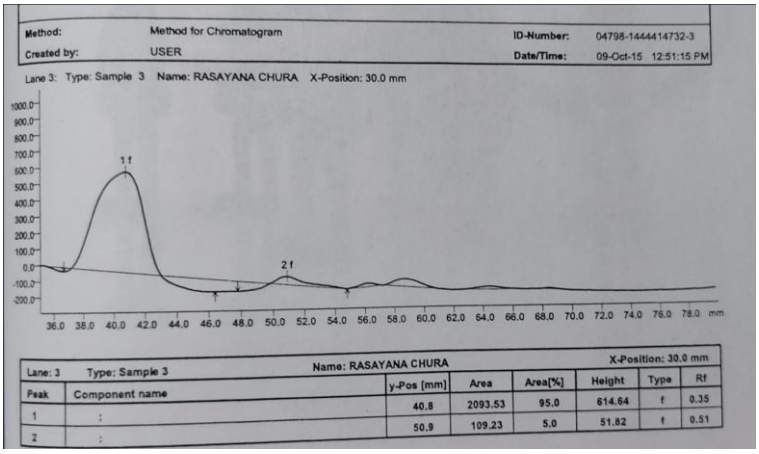


Fig 11. Stone cells

Table 5: High Performance Thin Layer Chromatography (HPTLC) Densitogram and Peak list



DISCUSSION

Pharmacognostic study of *Rasayana churna Vati* revealed the presence of each ingredients microscopic character which confirms adequate quality of the finished product. Analysis of all the pharmaceutical parameters showed values within acceptable limits. Due to tablet form of *Rasayan churna* the form Loss on drying was only 1.87% w/w which was applied to determine the amount of water or volatile matter in the sample. Water soluble extractive, Total ash and Acid insoluble ash results showed that inorganic content presence in sample of *Rasayana Churna*. HPTLC chromatogram of *Rasayana Churna Vati* showed presence of each and every ingredient in formulation on the basis of comparison with established Rf values.

CONCLUSION

On the basis of Pharmacognostical and phytochemical analysis illustration of specific characters of each Ingredient was found in *Rasayana churna Vati*. Satisfactory Physico-chemical profile is obtained by results which matched with the prescribed limits of all essential parameter for quality assurance. Unique Rf value established by previous studies also found in present study which is a marker for the quality control. Thus it can be concluded that *Rasayana Churna Vati* was found of optimum quality and accomplish all parameters of quality control.

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Cite this article as:
Sarvesh Kumar, Anjali Verma. Pharmacognostical and Phytochemical Analysis of Rasayana Churna Vati for Quality Control - An Ayurveda Formulation. International Journal of Ayurveda and Pharma Research. 2021;9(6):20-23.
Source of support: Nil, Conflict of interest: None Declared

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