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Research Article

ASSESEMENT OF BHAVANA SAMSKARA BY PHYTO-PHARMACOGNOSTICAL EVALUATION IN HARITAKI CHURNA

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Abstract

Ayurveda has accepted gunas as principle karanas, among them paradi gunas are important karana for successful chikitsa. Samskara among them plays a pivotal role in alteration of gunas in drugs so as to suit the condition of patient and disease. The changes in a drug because of samskara can be perceived at pharmacognostical as well as phytochemical levels. In this study Haritaki (*Terminalia chebula* Retz.) was selected as drug on which bhavana samskara of Haritaki kashaya was done which showed changes at phyto-pharmacognostical levels.

Key words: Samskara; Bhavana; Haritaki; Pharmacognosy; Phyto-chemical.

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INTRODUCTION

Ayurveda accepts guna (properties) as principle karana (causitive factor). Paradi gunas are a class of guna which are regarded as keys to successful treatment by Charaka.[1] In paradi gunas samskara (refinement) and samyoga (combination) play very important role in pharmaceutics. Kalpanas (formulations) of medicinal drugs so as to suit the desired condition of patient and disease can be produced as and when required on the basis of various samyoga and samskaras.[2] Samskara guna among these has a unique role to play in various pharmaceutical preparations. Samskara has been defined as guna antaradhana which means placing or adding newer gunas in a drug.[3] Samskara guna is of three types vega (velocity), bhavana (trituration) and sthitisthapakatva (capacity of a drug to maintain its original form).[4] Bhavana is probably the most extensively used samskara in pharmaceutical preparations. Bhavana is mixing of drava (liquid) with a dravya (solid) in order to impart its gunas in it.[5]

Charaka in context of describing principles of pharmaceutics advocates for bhavana samskara where Bhavana of drugs by swarasa of same drug or drugs with similar properties is anticipated by Charaka[6] and its uses are explained as quicker, augmented and persistent action with minimal dose.

In this article an attempt has been made to evaluate the differences in gunas by bhavana samskara, for this Haritaki was selected as trial drug. Bhavana of Haritaki kashaya was given to Haritaki churna and both the samples were evaluated pharmacognostically. Standard API parameters were also evaluated to find out changes in gunas by bhavana samskara at these levels.

MATERIAL AND METHODS

Collection and Preparation of Samples

Mature fruits of Haritaki (*Terminalia Chebula* Retz.; Family: Combretaceae) were collected from Sasoi botanical garden, Jamnagar district, Gujarat, in fully matured condition, during the month of January and were authenticated by taxonomist. These fruits were shade dried for 20 days and then pulverized to fine powder (mesh no. 80) and stored in airtight container (Sample 1, H1). Half of this powder was triturated in the end runner with decoction of Haritaki by adding quantity sufficient to soak it for three times. Total time required for triturating was 64 hours after which the material was again dried in hot air oven at 80^0C for 48 hours so as to get hard balls. This material again was powdered (Sample 2, H2).

Pharmacognostical evaluation

Powder microscopy of both the samples was done without stain and after staining with Phloroglycenol+HCl. Micro photographs were taken under Carl Zeus microscope attached with camera.[7]

Phytochemical evaluation

Organoleptic characters, loss on drying, ash value, water soluble extract, alcohol soluble extract and pH in 5% aqueous suspension were assessed. Qualitative assessment of functional groups was also carried out.[8]

OBSERVATIONS AND RESULTS

Pharmacognostical comparison of these samples revealed certain changes which are comparatively in photographs bellow figure 1. It was observed that in H2 sample staining was not proper as compared to H1.

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Figure 1: Showing change in colour in H1 and H2 samples

Sample H1

Sample H2

Table 1: Showing organoleptic characters of both samples

Sl. No.	Character	H 1	H 2
1.	Sparsha	Mrudu/ Soft	Mrudu / Chikkana /Sticky
2.	Rupa	Light yellow	Brown
3.	Rasa	Kashaya slight amla and madhura	Potency of kashaya increased
4.	Gandha	Typical smell	Typical smell more strong

Oraganoleptic characters are tabulated in Table 1. Other analytical parameters are presented in Table 2. Functional group qualitative analysis is presented in Table 3.

Table 2: Showing analytical parameters of both samples

Sl. No.	Name of Parameter	H 1	H 2
1.	Loss on Drying (w/w)	9.53	8.95
2.	Total Ash (w/w)	2.90	6.90
3.	Water Soluble Extract (w/w)	33.90	35.92
4.	Alcohol Soluble Extract (w/w)	38.64	50.16
5.	pH	4.0	3.5

Table 3: Showing assessment of functional groups in both samples

Sl.No.	Functional Group	H 1	H 2
1.	Glycosides	+	-
2.	Proteins	+	+
3.	Steroids	+	+
4.	Saponin	+	+
5.	Flavanoids	+	+
6.	Alkaloids	-	-
7.	Phenolic Compounds	+	+

+ Present; - Absent

DISCUSSION

Possibility of partial staining in H2 is indicative of destruction of lignine material during bhavana. Appearance of partial destruction of scleroids and fibres indicates that bhavana changes the intra cellular structures this may increase bio-availability of intra cell nutrients due to bhavana.

Aleurone grains, simple and compound starch grains, sclereids with narrow lumen, rosette crystals of calcium oxalate, fibres and mesocarp cells were the characters noted in both samples. In sample H2 mesocarp cells as well fibres were structurally damaged.

Organoleptic characters showed increased kashaya rasa after bhavana i.e. in sample H2. Colour of sample was also changed from yellow (H1) to dark brown (H2) because of bhavana. Increase in rasa and rupa/varna show increase in potency i.e. baladhana of drugs. Loss on drying in sample H2 was little on lower side which indicate that this sample is having less moisture.

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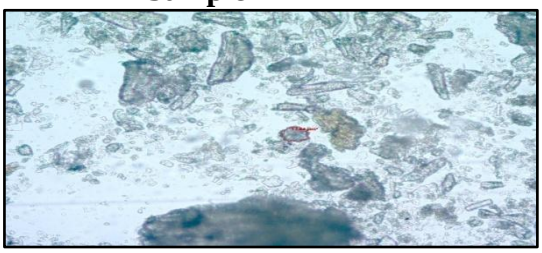
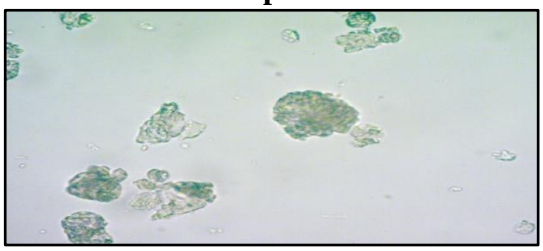
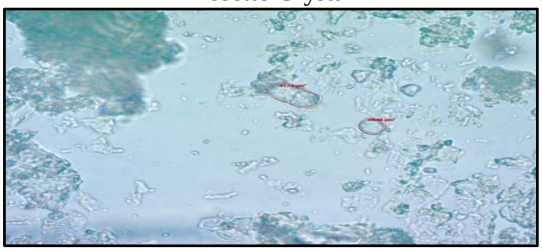
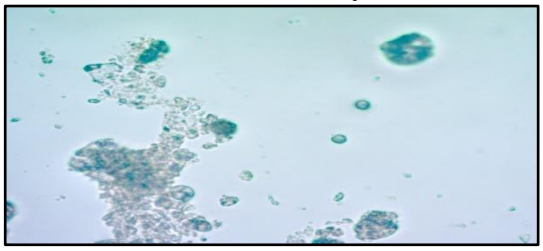
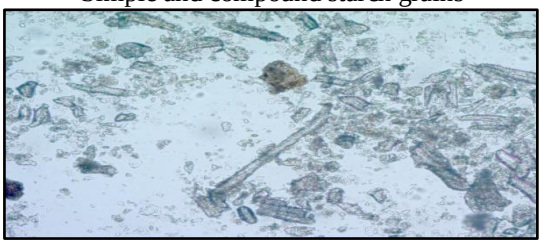
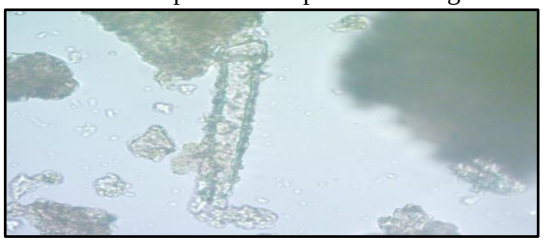
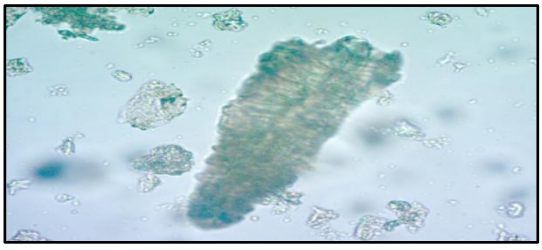
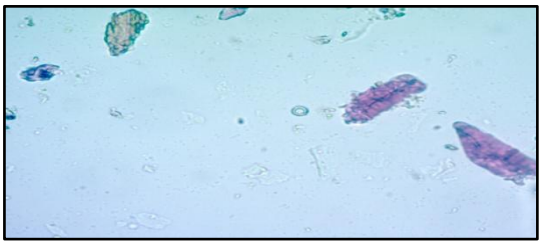
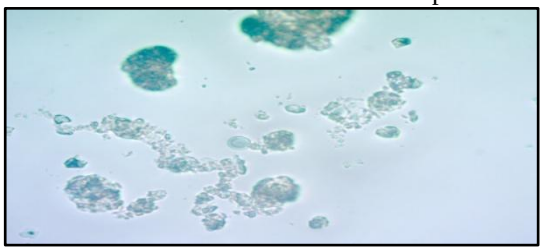
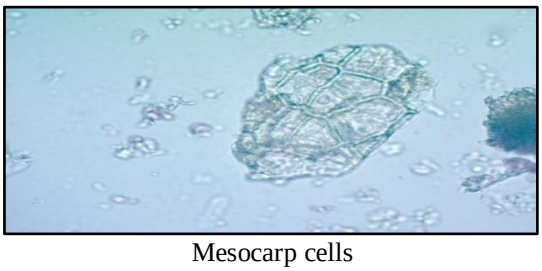
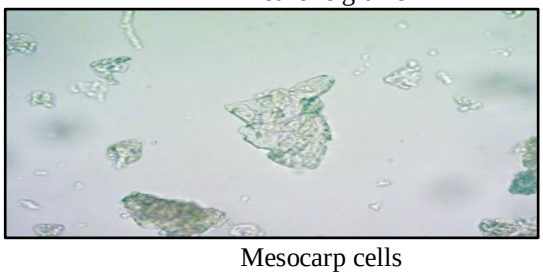
Figure 2: Showing comparative pharmacognostical characters of both samples.

Sample H1	Sample H2
	
Rosette Crystal	Rosette Crystal
	
Simple and compound starch grains	Simple and compound starch grains
	
Tannins with fibres	Fibre
	
Sclereids with narrow lumen	Sclereids with lost shape
	
Aleurone grains	Aleurone grains
	
Mesocarp cells	Mesocarp cells

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Total ash value was on higher side which indicate increase in inorganic component of drug which is clear as the bhavana was given by kashaya, water soluble component of Haritaki was added during bhavana. Water soluble extractive values are near what similar insignificant which is indicative of similar load of total polar extractive components. Acid extractive value of H2 is more as compared to H1 which is indicative of increase in load of total non-polar extractive component of the drug. pH of both samples indicate towards acidic nature of samples.

CONCLUSION

Bhavana samskara plays an important role in altering guna, karmas of a drug which are also seen at macroscopic as well as microscopic level. Changes due to samskara guna can be elicited on the basis of analytical parameters as well as pharmacognostical level however correlation between these changes and clinical efficacy need to be assessed independently.

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