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Evaluation of *Gomutra Haritaki* - An Ayurvedic Compound

Yogesh L Manani[1*], L P Dei[2], Shilpa B Donga[2], C R Harisha[2], V J Shukla[2]

Abstract: *Gomutra Haritaki* is one of the Ayurvedic Drug which has been indicated for *Granthi*, *Arbuda*, *Apachi, Pandu, Sotha, Arsha*. Here to treat *Garbhashaya Arbuda* (Uterine fibroid) *Gomutra Haritaki* was taken. The present work was carried out to standardize the finished product *Gomutra Haritaki* to conform its identity, quality and purity. The pharmacognostical work reveals that presence of simple and compound grains, vessels with simple pits and groups of sclereids, few fibres, stone cells, mesocarp cells and tannin containing cells had observed microscopically from fruit of *Terminalia chebula*. Organoleptic features of GH made out of the crude drugs were within the standard range as mentioned in the classic. The pH value of GH was 4.5, Loss on drying was 5.05 %w/w, ash value was 6.51 %w/w, water-soluble extract was 59.69 %w/w, methanol soluble extraction was 59.27 %w/w, acid insoluble ash value was 2.43% w/w and high performance thin layer chromatography (HPTLC) at 254 nm and 366 nm resulted into 8 and 7 spots respectively.

INTRODUCTION

Gomutra Haritaki is indicated for *Granthi*, *Arbuda*, *Apachi, Pandu, Sotha, Arsha*. [1] *Haritaki* (*Terminalia chebula* Retz) and *Gomutra* are the constituents in this formulation. *Haritaki* has *Kashaya, Ruksha, Ushna, Anulomana* properties and *Gomutra* has *Katu*, *Tikshna*, *Ushna*, *Kshara* properties. Due to this property, it breaks the *Samprapti* of *Garbhashaya Arbuda*. As it is *Deepana*, *Pachana* and *Vatanulomana,* it can do very well in certain *Vata-Kapha* condition like *Garbhashaya Arbuda*. The present work was carried out to standardize and evaluate the pharmacognostical as well as to analyze the physico-chemical properties of *Gomutra Haritaki.*

MATERIALS AND METHODS

Haritaki has been purcheshed from market while *Gomutra* has been collected from Una District- Junagadh (20° 82' 0"North and 71° 03' 0" East). The ingredients and the part used are given in Table 1.

Pharmacognostical Evaluation

Raw drugs were identified and authenticated by the Pharmacognosy lab, IPGT and RA, Jamnagar. The identification was carried out based on the morphological features, organoleptic features and transverse section microscopy of the individual drugs. For pharmacognostical evaluation, drugs studied under the Corl zeiss Trinocular microscope attached with camera, with stain and without stain. [2] The microphotographs were also taken under the microscope.

Preparation of the *Gomutra Haritaki*

Method of preparation was adopted as standard procedure from *Astang Hridayam.* [3] Total 1200 pieces dry *Haritaki* fruits have been boiled by 61.4 lit. *Gomutra* in *Lauha Patra* till *Gomutra* evaporated completely.

Physico-chemical Evaluation

Gomutra Haritaki was analysed by using standard qualitative and quantitative parameters, HPTLC was carried out after making appropriate solvent system with Methanolic extract of *Gomutra Haritaki* at the Pharmaceutical Chemistry lab, I.P.G.T. and R.A. Gujarat Ayurved University, Jamnagar. Presence of more moisture content in a sample may create preservation problem. Hence loss on drying [4] was also selected as one of the parameters. Water soluble extract, [5] Methanol soluble extract, [6] pH, [7] Ash Value and Acid insoluble Ash value selected as the parameters. Organoleptical parameters, Physico-chemical analysis, investigations were carried out by following standard procedure. High Performance Thin layer chromatography (HPTLC) studies were carried out with acid hydrolyzed methanolic extract on pre-coated silica gel GF 60254 aluminium plates as 5mm bands, 5mm apart and 1cm from the edge of the plates, by means of a Camag Linomate V sample applicator fitted with a 100 µl Hamilton syringe. The mobile phase used was Toluene: Ethyl acetate: Glacial acetic acid: Formic acid (5:5:1:0.5). The plates were developed in Camag twin trough chamber (20 x 10 cm^2) and spots were detected in short U.V. (254 nm), Long U.V (366 nm). Camag Scanner II (Ver. 3.14) and Cats soft ware (Ver. 3.17) were used for documentation.

RESULTS AND DISCUSSION

Pharmacognostical Study

Microscopically evaluation is very important in the initial identification of ingredients as well as in the detection of adulterations**.** Identification of original drug is the first step to maintain the quality of the final product. The pharmacognostical work reveals that presence of simple and compound Grains, vessels with simple pits and groups of sclereids, few fibres, stone cells, mesocarp cells and tannin containing cells had observed microscopically from fruit of *Terminalia chebula* (Figure 1 to 6). All the ingredients were authenticated with help of characters mentioned in the API.

Organoleptic Study

Organoleptic evaluation was carried out to assess the color, odor and taste of *Gomutra Haritaki*. Organoleptic features of Gomutra Haritaki were observed like Fine in touch, Yellowish brown in colour, characteristic in odour, Salty in taste comparing API, brown coloured, fine preparation with

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Table 1: Ingredients of *Gomutra Haritaki*

Content	Latin Name	Part used	Ratio	Quantity
Haritaki	*Terminalia Chebula* Retz.	Fruit	200 pieces	1200 pieces
Gomutra	-		10240 ml	61400 ml

Table 2: Chemical Analysis of *Gomutra Haritaki*

No.	Name of the Test	Present Study	As per API
1	Loss of drying (at 110°C)	5.05 % w/w	Not more than 10 per cent
2	Ash Value	6.51 % w/w	Not more than 10 per cent,
3	Water soluble extraction	59.69 % w/w	Not less than 49 per cent,
4	Methanol soluble extraction	59.27 % w/w	Not less than 28 per cent,
5	pH value by pH paper	4.5	5.0 to 6.0,
6	Acid insoluble Ash value	2.43% w/w	Not more than 0.95 per cent,

Table 3: Chromatography of *Gomutra Haritaki*

UV-254 nm		UV-366 nm	
No. of Spot	Rf Value	No. of Spot	Rf Value
1	0.06	1	0.06
2	0.19	2	0.25
3	0.25	3	0.28
4	0.38	4	0.68
5	0.61	5	0.75
6	0.75	6	0.82
7	0.83	7	1.00
8	0.88		

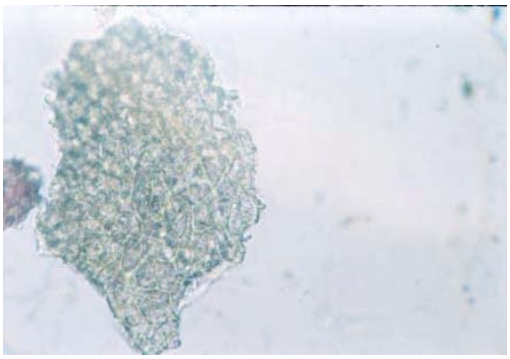

Figure 1: Mesocarp cells

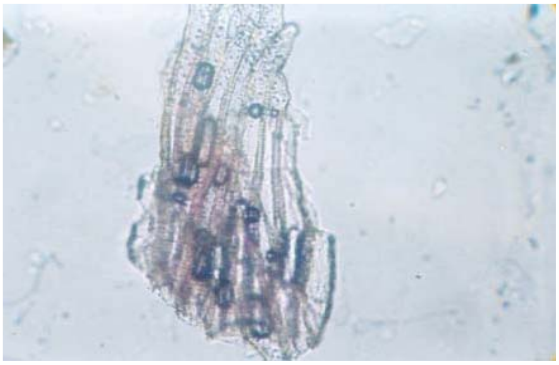

Figure 2: Sclereids

odour of Gomutra; taste salty [8] were found**.** All parameters found as per API standards.

Physico-chemical Parameters

Standardization of herbal products is the need of time because of several reasons. Physico- chemical Parameters of the Gomutra Haritaki like loss on drying, water soluble extract etc. were examined and parameters were compared with API, Table 2.

The total ash is particularly important in the evaluation of purity of drugs, i.e. the presence or absence of foreign matter such as metallic salts or silica. [9-11] Analytical results showed total ash value [12] for GH was 6.51 % w/w. The amount of acid-insoluble ash [13] present 2.43 %w/w hence the results of ash values is high may be due to the crude drugs used for preparation of Gomutra Haritaki. The water soluble extractive values indicated the presence of sugar, acids and inorganic compounds. [14-15] Analytical results showed water soluble extractive [16] value for GH was 59.69 %w/w. The alcohol soluble extractive values indicated the presence of polar constituents like phenols, alkaloids, steroids, glycosides, flavonoids. [17] The alcohol soluble extractive [18] value In GH was 59.27 %w/w, which signifies the superiority of GH which was prepared by using traditional method of preparation. Deterioration time of the plant material depends upon the amount of water present in plant material. If the water content is high, the plant can be easily deteriorated due to fungus. [19] The loss on drying [20] at 110°C was 5.05 %w/w. The pH [21] from 10 % w/v solution revealed that pH of GH was 4.5, slightly acidic as acidic salts present in the crude drugs and heat regeneration during the method used in preparation of the Drug GH.

HPTLC Study Results

On performing HPTLC, visual observation under UV light showed few spots but on analyzing under densitometer much more was observed and at 254 nm the chromatogram

Figure 3: Lignified fibre

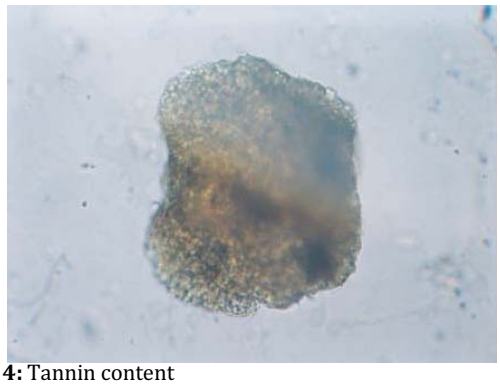

Figure 4: Tannin content

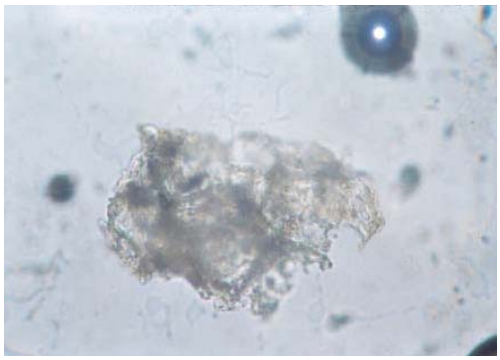

Figure 5: Parenchyma cells

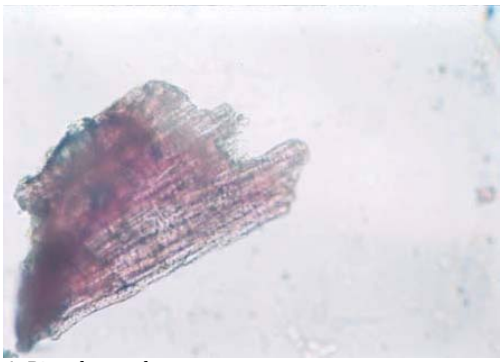

Figure 6: Pitted vessel

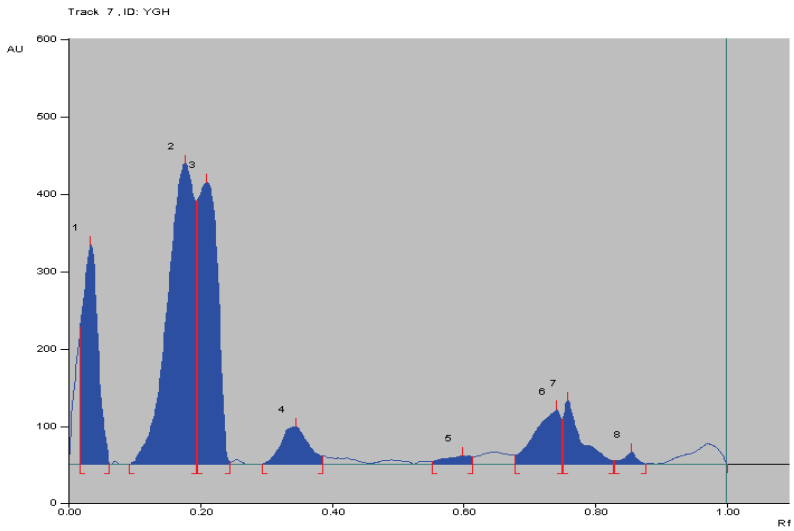

Figure 7: Thin layer chromatography of *Gomutra Haritaki* at UV-254 nm

showed 8 peaks, at 366nm the chromatogram showed 7 peaks (Table 3). Eight peaks found at Rf value 0.06, 0.19, 0.25, 0.38, 0.61, 0.75, 0.83 and 0.88 in 254 nm wavelength while Four peaks found at Rf value 0.06, 0.25, 0.28,0.68, 0.75, 0.82 and 1.00 in 366 nm wavelength (Figure 7, 8). HPTLC could not assess according to standards as the parameter not mentioned in API for the drug VA.

CONCLUSION

Gomutra Haritaki is a potent medicine in the management of disease *Garbhashaya Arbuda.* Preliminary the morphological features, organoleptic features and powder microscopy of the individual drugs results confirm the genuinity and no adulterants found. For authentification, all the ingredients were compared with the parameters mentioned in API (Ayurvedic Pharmacopeia of India). Phyto-chemical analysis had assessed but still need validation through repeated experiment on different batches with quantity of ingredients. These groundwork requisites for the standardization of GH are covered in the current study, additional important analysis and investigations are required for the identification of all the active chemical constituents of the test drug to substantiate the clinical efficacy.

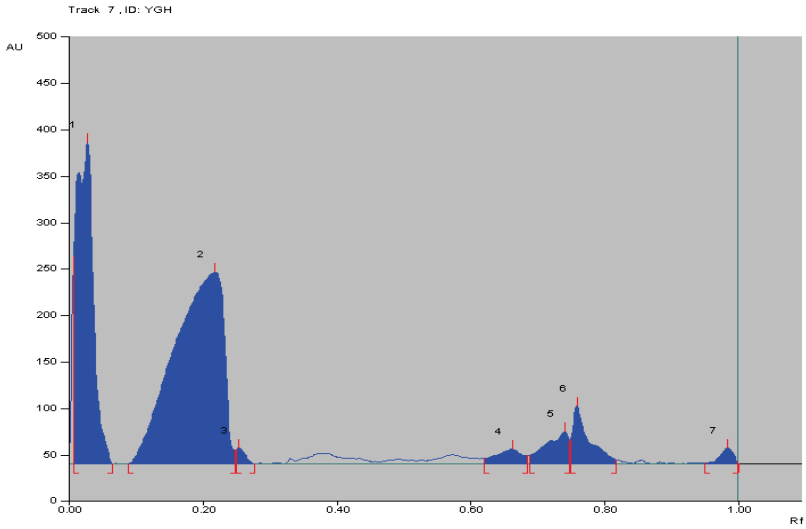

Figure 8: Thin layer chromatography of *Gomutra Haritaki* at UV-366 nm

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