

**PHARMACOGNOSTICAL AND PHARMACEUTICAL EVALUATION  
OF HEMKANDA GHRUTA- AN AYURVEDIC FORMULATION****Dr. Yogesh L. Manani\*<sup>1</sup>, Prof. L. P. Dei<sup>2</sup> and Dr. Rahul Singadiya<sup>3</sup>**

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**ABSTRACT**

*Hemkanda (Cadaba indica Lam.)* a folk medicines, is successfully being used for the treatment of fibroid in various part of the country. It is also employed in the treatment of amenorrhea, dysmenorrhoea and uterine obstruction. *Hemakanda Ghruta* (HG) is studied first time in *Garbhashaya Arbuda* (Uterine fibroid). The present work was carried out to pharmacognostical and pharmaceutical evaluation of *Hemkanda Ghruta* to conform its identity, quality and purity. The pharmacognostical work reveals that presence of Stomata, prismatic crystals, fragment of trichomes, fragment of wavy parenchyma cells, annular vessels sclera, lignified fiber and stone cells had observed microscopically from leaves of *Cadaba indica*. Pharamaceutical

evaluation of HG showed that Specific Gravity (At room Temperature) was 0.913, Refractive Index (At room Temperature) was 1.465, Iodine value was 27.008% w/w, Acid value was 4.73% w/w and Saponification value was 228.34% w/w.

**KEYWORDS:** *Cadaba indica*, *Garbhashaya Arbuda*, *Hemkanda Ghruta*, Pharmacognosy, Pharmaceutics, Standardization.

## INTRODUCTION

*Hemkanda* (*Cadaba indica* Lam.), a folk medicines, is successfully being used for the treatment of fibroid in various part of the country especially in Gujarat (Una) and Maharashtra (Matunga). Decoction of *Hemkanda* leaves with other ingredients is employed in the treatment of amenorrhoea, dysmenorrhoea. Leaves of *Cadaba indica* are also used in uterine obstruction.<sup>[1]</sup> Another study explained potential of *Cadaba indica* (*C. farinose*) against cancer through their survey.<sup>[2]</sup> *Hemakanda* have *Raktadoshahara*, *Visarpaghna*, *Shothaghna*, *Pitta kapha Shamaka* properties. *Ghruta* have *Deepana*, *Rakta Vikarahara*, *Vranahara*, *Vatarogahara*, *Visarpahara* properties. Both have *Sheeta Veerya*, *Madhura Rasa* and *Vipaka* properties. It can do very well in certain condition of metrorrhagia and menorrhagia of *Garbhashaya Arbuda*. The present work was carried out to evaluate the pharmacognostical as well as pharmaceutical properties of *Hemkanda Ghruta*.

## MATERIALS AND METHODS

**Drug Material:** Go-*Ghruta* has been purchased from market while *Hemkanda* leaves has been collected from Una District- Junagadh (20° 82' 0"North & 71° 03' 0" East). The ingredients and the part used are given in (Table 1).

### Method of Pharmacognostical evaluation

Raw drugs were identified and authenticated by the Pharmacognosy lab, IPGT&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. The microphotographs were also taken under the microscope.

### Method of Preparation of the *Hemakand Ghruta*

Method of preparation was adopted as standard procedure from *Sarangdhara samhita*.<sup>[3]</sup> All the ingredient mixed well. Heat for 3 h with constant stirring maintaining the temperature between 50<sup>0</sup> and 90<sup>0</sup>C during the first hour of heating. Stop heating and allow to stand overnight. Start the heating next day and observe the boiling mixture for subsidence of froth (*Phena shanti*) and constantly check the Kalka for formation of *varti*.

### Method of Physico-chemical evaluation

*Hemakand Ghruta* was analysed by using standard qualitative and quantitative parameters, like Specific Gravity, Refractive Index<sup>[4]</sup>, Iodine value<sup>[5]</sup>, Acid value<sup>[6]</sup> and Saponification value<sup>[7]</sup> at the Pharmaceutical Chemistry lab, I.P.G.T. & R.A. Gujarat Ayurved University, Jamnagar.

## RESULTS AND DISCUSSION

### Pharmacognostical study

Microscopic 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 Stomata, prismatic crystals, fragment of trichomes, fragment of wavy parenchyma cells, annular vessels sclera, lignified fiber and stone cells had observed microscopically from leaves of *Cadaba indica*. (Figure 1 - 6)

### Organoleptic study

Organoleptic evaluation was carried out to assess the color, odor and taste of *Hemakand Ghruta*. Organoleptic features of *Hemakand Ghruta* were observed like Slippery in touch, Greenish in colour, Aromatic (pungent) in odour, mild sweet in taste.

### Physico- chemical Parameters

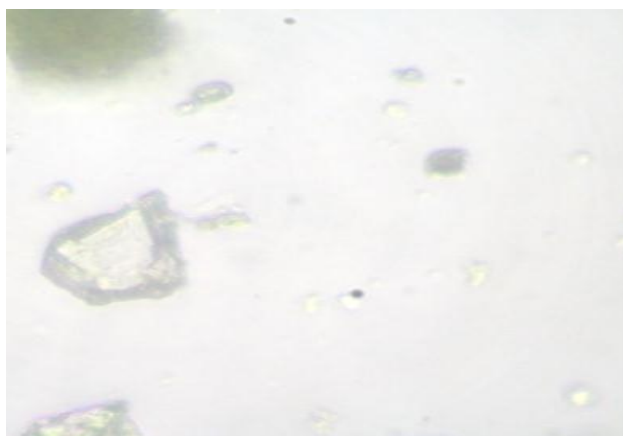
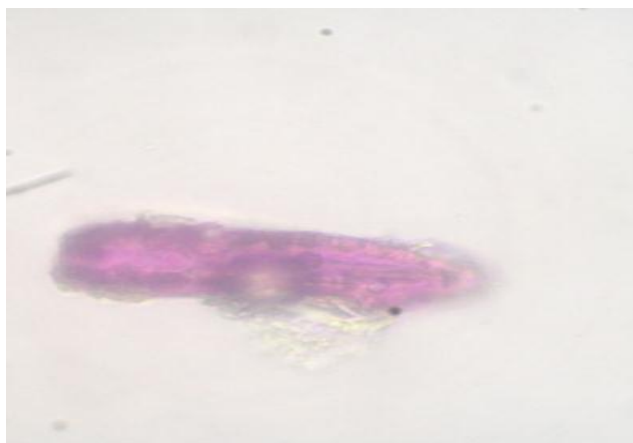
Quality control parameters like specific gravity, saponification value are standard for any fat or oil or Ghruta. Similarly, when fats become rancid, triglycerides are converted into fatty acids and glycerol,<sup>[8]</sup> causing an increase in acid value, iodine value and refractive index suggestive of oxidation.<sup>[9]</sup> The oxidation levels of Ghruta are important quality criteria in food chemistry because oxidation increases their toxicity by the formation of products such as hydroperoxides, aldehydes, ketones, etc.<sup>[10]</sup> All the physico-chemical parameters, acid value, saponification value, Refractive index, iodine value, specific gravity analyzed. Results showed that Specific Gravity was 0.913, Refractive Index was 1.465, Iodine value was 27.008% w/w, Acid value was 4.73% w/w and Saponification value was 228.34% w/w. (Table 2) As no previous research work is available on *Hemakanda Ghruta*, values are compared to the standard values of cow's ghee.<sup>[11]</sup> Values of HG are found almost near to the reference range as specified for cow's ghee. All the results show that the prepared Ghruta formulation is not rancid (after 7 months of preparation) and the quality of the Ghruta is standard.

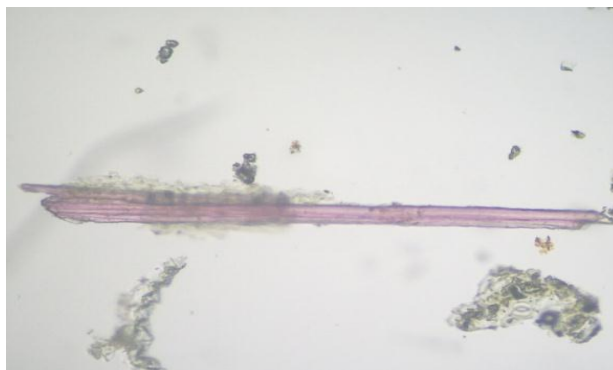
**Table 1: Ingredients of *Hemakand Ghruta*.**

Content	Latin name/English name	Part used	Ratio	Quantity	Form
<i>Go Ghruta</i>	<i>Cow's Ghee</i>	-	4 parts	20kg.	<i>Ghruta</i>
<i>Hemkanda</i>	<i>Cadaba indica</i> Lam.	Leaves	16 parts	80 lt.	<i>Swarasa</i>
<i>Hemkanda</i>	<i>Cadaba indica</i> Lam.	Leaves	1 parts	5 kg.	<i>Kalka</i>

**Table 2: Chemical Analysis of *Hemakand Ghruta*.**

No.	Name of the Test	Value
1.	Specific Gravity (At room Temperature)	0.913
2.	Refractive Index (At room Temperature)	1.465
3.	Iodine value (w/w)	27.008
4.	Acid value (w/w)	4.73
5.	Saponification value (w/w)	228.34

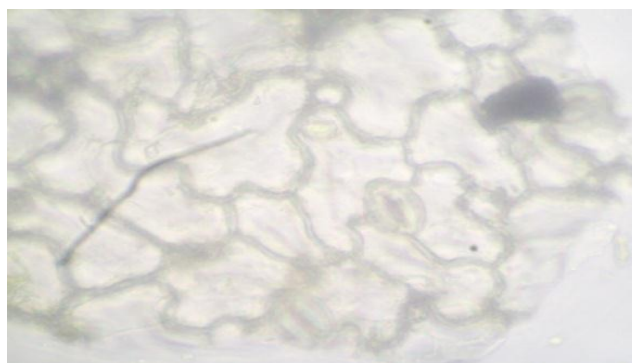
**Figure 1: Prismatic crystal.****Figure 2: lignified Stone cell.**



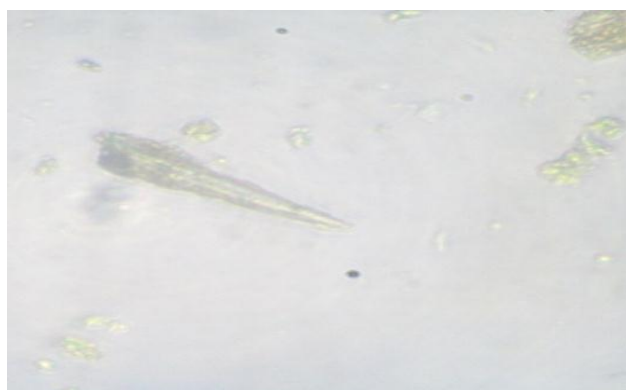
**Figure 3: lignified Fibre.**



**Figure 4: Wavy Parenchyma.**



**Figure 5: Anomocytic Stomata.**



**Figure 6: Simple Trichome fragment.**

## CONCLUSION

*Hemakand Ghruta* is a folklore medicine in the management of disease *Garbhashaya Arbuda*. Preliminary the morphological features, organoleptic features and microscopy of drug results confirm the genuinity and no adulterants found. 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 HG 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.

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