



Research Article

www.ijrap.net



PHARMACOGNOSTICAL AND PHARMACEUTICAL EVALUATION OF VIDANGA VATI

Himanshu Kanzariya ^{1*}, Alankruta Dave ², Harisha CR ³, Jitendra Varsakiya ⁴

¹Assistant Professor, Department of Kayachikitsa, O H Nazar Ayurveda Collage Surat, Gujarat, India

²Associate Professor, Department of Kayachikitsa, Institute for Postgraduate Teaching and Research in Ayurveda, Gujarat Ayurved University, Jamnagar, Gujarat, India

³Pharmacognocny laboratory, Institute for Postgraduate Teaching and Research in Ayurveda, Gujarat Ayurved University, Jamnagar, Gujarat, India

⁴Ph.D Scholar, Department of Kayachikitsa, Institute for Postgraduate Teaching and Research in Ayurveda, Gujarat Ayurved University, Jamnagar, Gujarat, India

Received on: 31/03/17 Accepted on: 30/05/17

***Corresponding author**

E-mail: drhimen2006@gmail.com

DOI: 10.7897/2277-4343.083180

ABSTRACT

Today sedentary life style has given birth to number of diseases. Abnormal food habits, style of living, greed, anger have become a part of life. Changing of life style of modern human being has created several disharmonies in his biological system. Therapeutic benefits are not available to millions suffering from endocrine diseases in India. Hypothyroidism is a hypo metabolic clinical state resulting from inadequate production of thyroid hormones for prolonged periods or rarely, from resistance of the peripheral tissues to the effects of thyroid hormones. Its incidence is increasing day by day and its name became common on the tongue of society. It occurs about five times more often in females than in males. *Embelia ribes* promoted as a weight loss agent that supposedly enhances thyroid function. The anti-obesity effect of aqueous extract of *Embelia ribes* in rat fed a high fat diet may be through down regulation of leptin, TNF- α , SRFBP1, PPAR γ 2 gene expression. Till date no clinical trial and pharmaceutical analysis of Vidanga Vati has been carried out, hence in the present study Vidanga Vati was subjected to pharmacognostical and pharmaceutical analysis. Pharmacognostical evaluation showed presence of sclereids, stone cells, oil globules, peri sperm cells, tannin contain, prismatic crystal, starch grain aleurone grain, simple fibre and spoon shaped epidermal cells. Pharmaceutical evaluation showed loss on drying 7.93 % w/w, pH 4.5. HPTLC results showed 10 spots at 254nm and 4 spots at 366 nm.

Keywords: Vidanga, pharmacognosy, pharmaceutical analysis, Hypothyroidism

INTRODUCTION

A survey shows that endocrine disorders in several millions children and adults in India remain undetected and untreated because of inadequate professional expertise and lack of reliable diagnostic services. In the vast majority of cases Hypothyroidism (approximately 99%) results from an intrinsic disorder of the thyroid gland (primary Hypothyroidism). In this situation serum T₄ is low and TSH is elevated, usually in excess of 230mU/l. Measurement of serum T₃ are unhelpful since they do not discriminate reliably between thyroidism and Hypothyroidism. Due to Nidana Sevana (etiological factors), derangement of Jatharagni takes place which leads to derangement of Dhatvagni¹ and Bhutagni which finally triggers the disease Hypothyroidism. The anti-obesity effect of aqueous extract of *Embelia ribes* in rat fed a high fat diet may be through down regulation of leptin, TNF- α , SRFBP1, PPAR γ 2 gene expression².

Though Vidanga Vati promoted as a weight loss agent that supposedly enhances thyroid function, till date no work has been done to standardise the Vidanga Vati through pharmacognostical and Physico- chemical parameters, hence in the present study Vidanga Vati was subjected to pharmacognostical and pharmaceutical analysis.

MATERIAL AND METHODS

Collection of the drug

Dried mature fruits of Vidanga have been collected from the Pharmacy, G.A.U., Jamnagar.

Pharmacognostical Evaluation

As per API³ raw drugs were identified and authenticated by the Pharmacognosy Laboratory. The identification was carried out based on the organoleptic features and powder microscopy of the drugs. Later, pharmacognostical evaluation of Vidanga was carried out. Vidanga Vati was dissolved in small quantity of distilled water, studied under the Carl Zeiss Trinocular microscope attached with camera, with stain and without stain. The microphotographs were also taken under the microscope.

Preparation of Vidanga vati

Vidanga Vati was prepared in the Pharmacy, GAU, and Jamnagar. For this in the beginning, fine powder of Dried Vidanga fruit was made and then added binding agent gum acacia. Vati was prepared by this powder in the pills machine.

Physicochemical Evaluation

Vati was analyzed using various standard physicochemical parameters such as Loss on drying⁴, PH⁵, water soluble

extract⁶, and methanol soluble extract⁷ as per API at the pharmaceutical chemistry laboratory, IPGT&RA, Jamnagar.

HPTLC Study

CAMAG HPTLC system (Switzerland) comprising of Linomat 5 TLC applicator was used in the study carried out in IPGT & RA Gujarat Ayurveda University Pharmaceutical laboratory, Jamnagar Gujarat. High performance thin layer chromatography (HPTLC) is a sophisticated and automated form of TLC. H.P.T.L.C is quality assessment tool for the evaluation of botanical materials. It allows for the analysis of a broad number of compounds both efficiently and cost effectively. Additionally, numerous samples can be run in a single analysis thereby dramatically reducing analytical time. With HPTLC, the same analysis can be viewed using different wave-lengths of light thereby providing a more complete profile of the plant than is typically observed with more specific types of analyses.

The details of HPTLC done on alcoholic extract of Vidanga Vati are as follow:

Mobile Phase

Toluene: Ethyl acetate: Acetic acid (7:2:1) v/v.

Chromatographic Conditions

Application mode: CamagLinomat V
 Development Chamber: Camag Twin trough Chamber.
 Plates :Precoated Silica Gel GF254 Plates.
 Chamber Saturation: 30 min.
 Development Time: 30 min.
 Scanner: Camag Scanner III.
 Detection: Deuterium lamp, Tungstan Lamp
 Data System: Win cats software.

Methanolic extract of finished product was spotted on pre-coated silica gel GF 60254 aluminum plates by means of Camang Linomat V sample applicator fitted with a 100 µL Hamilton syringe. Toluene: Ethyl acetate: Acetic acid (7:2:1) was used as the mobile phase. After development, densitometric scan was performed with a Camag TLC scanner III in reflectance absorbance mode at UV detection as 254 nm and 366 nm under the control of Win CATS Software (V 1.2.1. Camag)⁸.

RESULTS

Pharmacognostical evaluation Organoleptic character

Weight of each Vati was about 500 mg, Round shape and Size about 0.5 cm, blackish in colour with characteristic odour, Hard and rough to touch.

Microscopical characters

Diagnostic characters of Vati under the microscope are sclerides, stone cells, oil globules, peri sperm cells, tannin contain, prismatic crystal, starch grain, olurin grain, simple fibre and spoon shaped epidermal cells. (Plate 1, Figure A-K)

Preliminary physico-chemical parameters

Preliminary Physico Chemical Parameters i.e. Weight, hardness, loss on drying etc. were properly studied and results are depicted in the Table 1.

DISCUSSION

HPTLC Results

HPTLC Results of Vidangadi Vati showed that 10 spots at 254nm and 4 spots at 366nm. Detailed results are depicted in the table No. 2. (Plate 2)

Vidanga consists of dried mature fruits of *Embelia ribes* Burm. f. (Fam. Myrsinaceae), large scandent shrub with long slender, flexible branches, distributed throughout parts of India up to. Vidanga is Anulomana (increase flatulence movement), Deepana (appetizer), Kruminashana (worminthus), Vatakaphapaha Properties. Vidanga is very similar to its western relatives in the plant family *Myrsinaceae*. Pharmacognostical evaluation showed that the presence of stone cells, oil globules, peril sperm cells, tannin content, prismatic crystal, starch grain, olurin grain, simple fibre and spoon shaped epidermal cells etc. This showed that the good quality of the finished product. The preliminary physicochemical parameters were within the limits.

CONCLUSION

Preliminary organoleptic features and results of powder microscopy reveal presence of stone cells, oil globules, peril sperm cells, tannin contain, prismatic crystal, starch grain, olurin grain, simple fibre and spoon shaped epidermal cells etc. In preliminary physico-chemical analysis, water-soluble and alcohol-soluble extract, pH, and loss on drying were assessed were within the standard range and HPTLC results of Vidanga Vati showed that 10 spots at 254nm and 4 spots at 366nm. As no published information is available on pharmacognostical and physicochemical profile of Vidanga, this preliminary information can be used for reference in future.

Table 1: Preliminary physico chemical parameters of vati

Sr. No	Test	Results
1.	Uniformity of Tablet	
	A.Highest weight Tablet	400mg
	B. Lowest weight Tablet	310mg
	C.Average Weight Tablet	340mg
2.	Tablet Hardness	2.1 Kg/cm ²
3.	Loss on Drying at 110 ° C	7.93% w/w
4.	Ash Value	1.4 w/w
5.	Water soluble extract	3.6% w/w
6.	Methanol extract	7.5% w/w
7.	pH	4.5

Table 2: HPTLC results of vidanga vati

Sample	Detection Condition	No. of spots	Rf value
Vidanga Vati	254 nm	10	0.02, 0.10, 0.16, 0.22, 0.36, 0.46, 0.54, 0.56, 0.70, 0.80
	366nm	4	0.01, 0.46, 0.58, 0.88

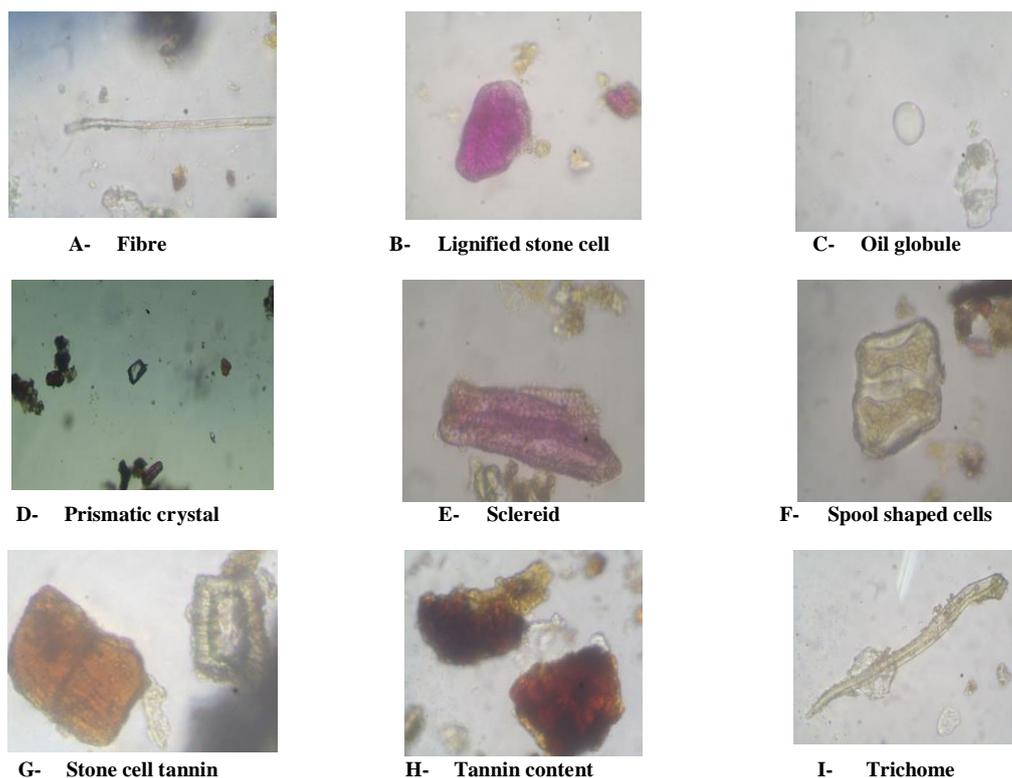


Plate 1: Powder Microscopy of *Vidanga*



Plate 2: HPTLC study of *Vidanga*

REFERENCES

- Pandit Hari Sadasiva Sastri Paradakara Bhisagacarya; Vagabhata, Ashtanga Hridaya with the commentaries Sarvangasundara of Arundatta and Ayurveda Rasayana of Hemadri, Chaukhamba orientalia, Varanasi, Reprint -2011. Sutra Sthana 11/34 page no.188.
- <https://www.Indiamart.com/maa-gayatri-herbals/natural-herbs.html>.accesseddate-26/12/2016
- Anonymous, The Ayurvedic Pharmacopoeia of India, First Ed. Part-1, Vol.-5 New Delhi, Ministry of Health & Family welfare. 2004.
- Anonymous, The Ayurvedic Pharmacopoeia of India, 1st Edition, Ministry of Health and Family Welfare, Govt. of India, Part I, Vol. I1999, Appendix - 2, Pg. 214 (2.2.9).
- Anonymous, The Ayurvedic Pharmacopoeia of India, 1st Edition, Ministry of Health and Family Welfare, Govt. of India, Part I, Vol. I1999, Appendix - 3, Pg -230 (3.3).
- Anonymous, The Ayurvedic Pharmacopoeia of India, 1st Edition, Ministry of Health and Family Welfare, Govt. of India, Part I, Vol. I1999, Appendix - 2, Pg - 214 (2.2.7).
- Anonymous, The Ayurvedic Pharmacopoeia of India, 1st Edition, Ministry of Health and Family Welfare, Govt. of India, Part I, Vol. I1999, Appendix - 2, Pg -214 (2.2.6).
- Stahl E. Thin layer chromatography a laboratory hand book. Berlin: Springer- Verlag; 1969. p.125-41.

Cite this article as:

Himanshu Kanzariya *et al.* Pharmacognostical and pharmaceutical evaluation of *Vidanga vati*. Int. J. Res. Ayurveda Pharm. 2017; 8(Suppl 3): 112-114 <http://dx.doi.org/10.7897/2277-4343.083180>

Source of support: Nil, Conflict of interest: None Declared

Disclaimer: IJRAP is solely owned by Moksha Publishing House - A non-profit publishing house, dedicated to publish quality research, while every effort has been taken to verify the accuracy of the content published in our Journal. IJRAP cannot accept any responsibility or liability for the site content and articles published. The views expressed in articles by our contributing authors are not necessarily those of IJRAP editor or editorial board members.