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PHARMACOGNOSTICAL AND PHYTOCHEMICAL STANDARDIZATION OF USHIRADYA TAILA-AN AYURVEDIC POLYHERBAL FORMULATION

Bhagirath Sankaliya[1]*, Dr. T. S. Dudhamal[2], Harisha C. R.[3] and Shukla V. J.[4]

[1]PG Scholar Dept., of Shalyatantra,

[2]Prof. and H.O.D. Dept., of Shalyatantra,

[3]Head, Pharmacognocy Lab,

[4]Head, Pharmaceutical Chemistry Lab, IPGT & RA, Jamnagar.

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***Corresponding Author**
Dr. Bhagirath Sankaliya
PG Scholar Dept., of Shalyatantra, IPGT & RA, Jamnagar.

ABSTARCT

Ayurveda has the potential with dealing natural and holistic approach of treatment and may be proven more effective as the conservative management proposed for Mootraghata (BPH). Because, the Vata Dosha is the main culprit to produce the Mootraghata hence the line of treatment is instituted in this study as Vata-Shamaka**,** Vatanulomaka**,** Shothahara**,** Lekhana as well as Mootrala to achieve the ultimate goal of treatment in the form of relief in the feature of Mootraghata with maximum acceptibility. The present work was carried out to standardize the finished product Ushiradya Taila to confirm its identity, quality and purity. There has been an increase in demand for the Phyto-pharmaceutical products of Ayurveda so a new pharmaceutical preparation in the form of was tried to standardize which is economical in terms of time and machinery usage. Pharmacognostical and phyto-chemical observations revealed the specific characters of all active constitue used in the preparation. The presence of oil globules, starch with prismatic crystals, cork cells, spiral vessels, trichome, prismatic crystal were the characteristic features observed in the microscopy of drug combination. And physic chemical analysis are Refractive index of Ushiradya Taila was found 1.4840., specific gravity 0.9189, iodine value 73.329, saponification value 112.0812 and acid value is 4.56.

KEYWORDS: Mootraghata (BPH), Pharmacognosy, Phyto-chemistry, Ushiradya Taila.

INTRODUCTION

Acharya Sushruta, the pioneer of *Shalya Tantra* (surgery) has enumerated the urology in his legendary text book of surgery, *Sushruta Samhita* by describing anatomy, physiology and pathology of many diseases related to urinary system like *Ashmaree* (urinary stone), *Mootrakrichchhra* (painful micturation), and *Mootraghata* (suppression or obstruction of urine) etc. with their management along with diseases of other systems. The description of *Basti* (urinary bladder), *Mootrotpatti* (formation of urine), *Mootravaha Srotasa* (urinary system) and *Shukravaha Srotasa* (reproductive system) is given in a concise way. The word *Mootraghata* comprises of two different words i.e. "*Mootra*" & "*Aghata*", which stand for low urine output due to obstruction in the passage of urine.

The twelve types of *Mootraghata*[1] reflect the symptoms of retention, incomplete voiding, dribbling, hesitancy, incontinence of urine, etc. These are basically presented the features related to the Lower Urinary Tract Symptoms (LUTS) and can be co-related with Benign Prostatic Hyperplasia (BPH) in modern parlance.

Ushiradya Taila work as local *Lekhana Karma* of Prostatic Hyperplasia and it is mentioned as special treatment of *Mootraghata* in *Ayurveda*. The present evaluation done for the standardisation of *Ushiradya Taila* through the pharmacognostical and pharmaceutical standards. Organoleptic features of *Ushiradya Taila* were within the standard range. HPTLC were carried out after organizing appropriate solvent system.

MATERIAL AND METHOD

Collection and authentication of raw drugs

The raw drugs for the study were procured form the Pharmacy of Gujarat Ayurved University, Jamnagar. The ingredients were identified and authenticated in the Pharmacognosy Institute for Post Graduate Teaching & Research in Ayurveda, Gujarat Ayurved University, Jamnagar. The ingredients and the part used are given in table no 1.

Method of Preparation of Ushiradya Taila[2]

Ushiradya Taila was prepared as mentioned in Bhaishajya Ratnavali

Kalka Dravya: 6.5 Kg

Sneha Dravya: 26 Liter

Drava Dravya: 130 Liter

Pharmacognostical Evaluation

Morphological, organoleptic and microscopic evaluation of *Ushiradya Taila* ingradients were conducted at Pharmacognostical laboratory of institute. Individual powder were dissolved in small quantity of distilled water and studied with and without staining. Micro photographs of the slides were taken with Carl Zeiss microscope attached with camera.[1,2]

Physico-chemical Evaluation

The Ushiradya Taila were analysed by using standard qualitative and quantitative parameters at pharmaceutical laboratory of institute according to Protocol for Testing of Ayurvedic, Siddha and Unani Medicine[1] of Sneha kalpana for Specific Gravity, Refractive Index, Iodine value, Acid value, Saponification value.

HIGH PERFORMANCE THIN LAYER CHROMATOGRAPHY[1]

HPTLC method was conducted using an HPTLC system with a developed mobile phase system of toluene: ethyl acetate: formic acid (3:7:0.1) performed on precoated silica gel 60 F254 TLC plates. The method was validated based on linearity, accuracy, precision, limit of detection, limit of quantification (LOQ), and specificity, respectively. The detection of spots was observed at ultraviolet 254 nm and 366 nm. On analyzing under demonstrater at 254 nm, the chromatogram showed 10 peaks while at 366nm chromatogram showed 4 peaks, before spray and after spray the chromatogram showed 8 peaks at 254 nm and 7 peak at 366nm.

OBSERVATION AND RESULTS

Organoleptic Evaluation

Various parameters of the material such as colour, odour, touch and taste of the *Ushiradya Taila* were observed and recorded. Touch was analyzed with the help of *Darshana, Sparshana, ghrana and Rasana Pareeksha* mentioned in *Ayurveda*. Results were mentioned in the Table no.2.

Microscopic study

The powder microscopy of *Ushiradya Taila* confirmed the features of border pitted vessels of *Guduchi*, collenchyma of *Guduchi*, cork cell of *Aswagandha*, pitted vessel of *Ashwagandha*, border pitter of *Atibala*, starch grain of *Atibala*, pitted vessels of *Bala*, trichome of *Bibhitak*, border pitted of *Chandan*, simple starch of *Haritaki*, spiral vessels of *Haritaki*, olioresine of *Kustha*, pitted vesels of *Kushtha*, stone cell of *Padma*, rhomboidal of *Sariva*, epidermal cell

of *Shatpuspa*, oil globuler of *Shatpushpa*, pitted vessels of *Ushira*, reticulocyte of *Ushira* etc, which are depicted in [plate 1].

Physico-chemical Analysis

Physico-chemical analyses were carried out by following the parameters. Physico-chemical analysis like Refractive index, specific gravity, iodine value, saponification value and acid value is recorded and Results were mentioned in the table no. 3.

HPTLC

Results of HPTLC are given in Table no 4 and densitogram is shown in plate 2.

Table No. 1: Ingredients of *Ushiradya Taila.*

Sr. no.	Ingredients	Latine name	Quantity	Part uses
1	Ushira	Vetiveria zizanioidis linn.	1 Karsha	Moola
2	Tagara	Valeriana wallichiii D.C.	1 Karsha	Moola
3	Kustha	Saussurea lappa C.B.	1 Karsha	Moola
4	Yastimadhu	Glycirhazia glabra Linn.	1 Karsha	Moola
5	Chandana	Santalum album Linn.	1 Karsha	Kanda
6	Bibhitaki	Terminelia bellarica Roxb.	1 Karsha	Fala
7	Haritaki	Terminelia chebula Retz.	1 Karsha	Fala
8	Shatavari	Asparagus racemosus Willd.	1 Karsha	Kanda
9	Padma	Nelumbo nucifera Gaertn.	1 Karsha	Moola
10	Sariva	Hemidesmus indicum R. Br.	1 Karsha	Moola
11	Bala	Sida cordifolia Linn.	1 Karsha	Moola
12	Ashvagandha	Whithania somnifera Linn.	1 Karsha	Moola
13	Dashamula	-	1 Karsha	-
14	Vidari	Pueraria tuberose DC.	1 Karsha	Kanda
15	Guduchi	Tinospora cordifolia Willd.	1 Karsha	Kanda
16	Atibala	Abutilon indicum Linn.	1 Karsha	Moola
17	Gokshura	Tribulus terrestris Linn.	1 Karsha	Fala
18	Shatpushpa	Anethum sowa Kurz.	1 Karsha	Fala
19	Til taila	Sesamum indicum Linn.	1 Prastha	Taila
20	Takra	-	1 Prastha	-

Table No 2: Organoleptic characters of *Ushiradya Taila.*

No.	Organoleptic Characters	Results
1	Color	Yellowish brown
2	Odor	Characteristic
3	Touch	Slippery
4	Appearance	Dark

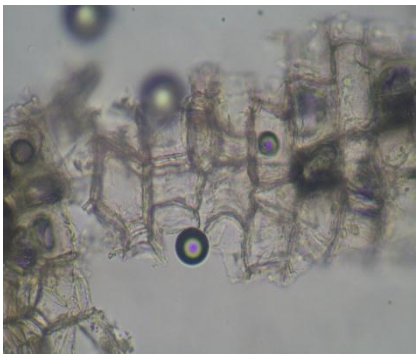
Table no 3: Physico-chemical analysis of Ushiradya Taila.

Sr.no.	Parameters	Results
1	Specific Gravity(At room Temperature)	0.9189
2	Refractive Index (At roomTemperature)	1.4840
3	Iodine value (w/w)	73.329
4	Acid value (w/w)	4.5616
5	Saponification value(w/w)	112.08

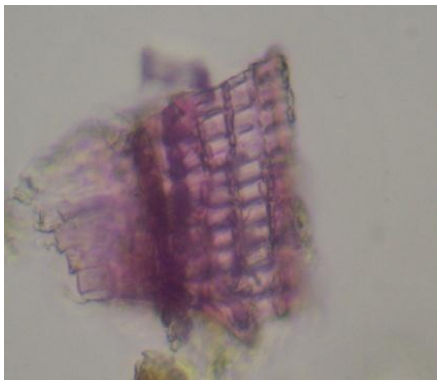
Table No. 4: Results of HPTLC of *Ushiradya Taila.*

UV-254nm				UV-366nm			
Before spray		After spray		Before spray		After spray	
No. of Spot	Max. Rf value	No. of Spot	Max. Rf value	No. of Spot	Max. Rf value	No. of Spot	Max. Rf value
1	0.02	1	0.03	1	0.00	1	0.03
2	0.04	2	0.07	2	0.03	2	0.07
3	0.07	3	0.12	3	0.06	3	0.12
4	0.10	4	0.25	4	0.42	4	0.49
5	0.18	5	0.48	-	-	5	0.73
6	0.41	6	0.73	-	-	6	0.90
7	0.42	7	0.90	-	-	7	0.96
8	0.61	8	0.96	-	-	-	-
9	0.89	-	-	-	-	-	-
10	0.90	-	-	-	-	-	-

Pitted vessels of Ashwagandha



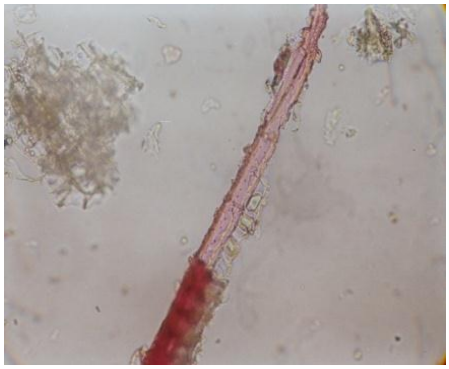
Cork cell of Atibala



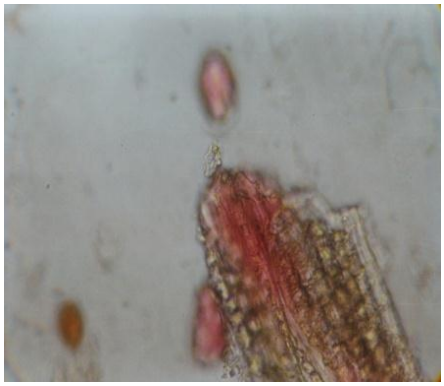
Pitted vessel of Bala

Starch grain of Chandan

Pitted stone of Bibhitak



Libnified fibre of Agnimanth



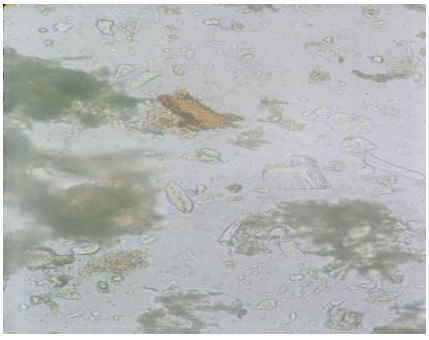
Pitted stone cell of Bilva

Simple trichome of Brihati

Lignified fibre Gambhari

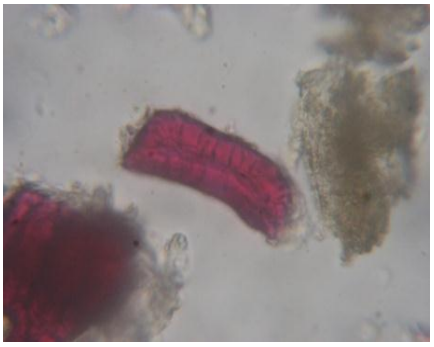
Trichome with fibre of Kantkari

Spiral vessel of Haritaki

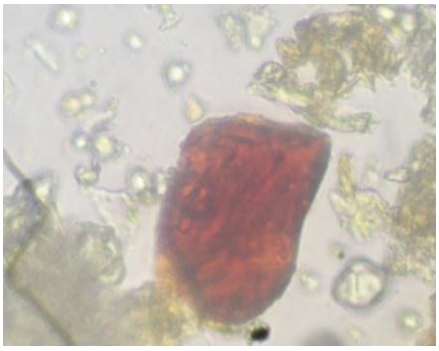


Olioresine of Kustha

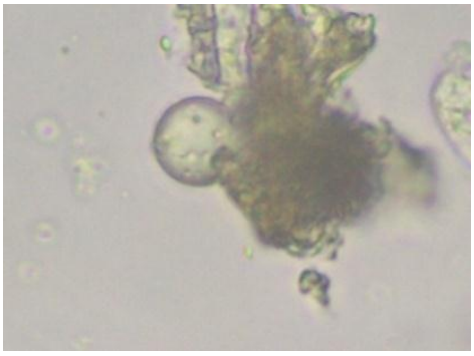
Collenchyma of *Guduchi*



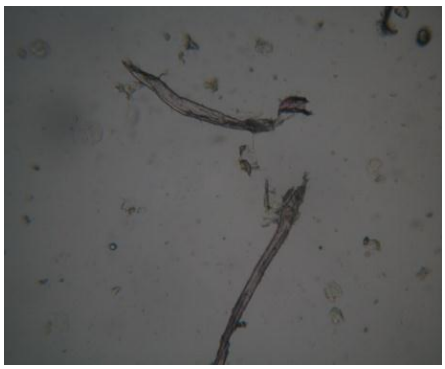
Stone cell of *Padma*



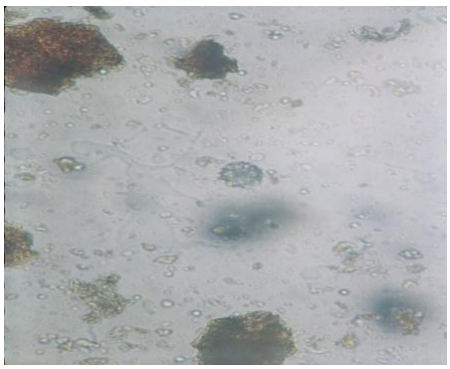
Tenin contain of *Sariva*



Oil globuls of *Satpushpa*



Simple fibre of *Satavari*



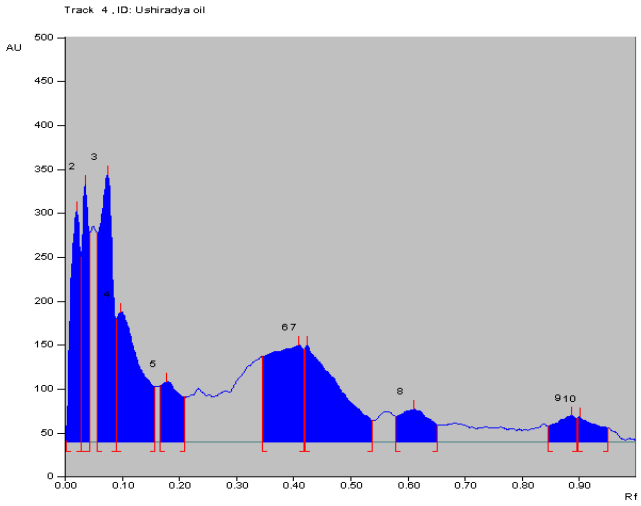
Rosette crystal of *Tagar*

Pitted vessel of *Ushira*

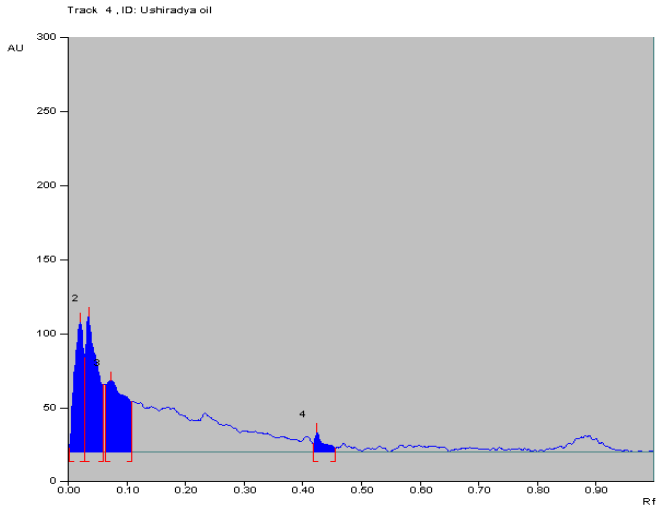
Sclereid of *Ushira*

Prismatic crystal of *Vidari*

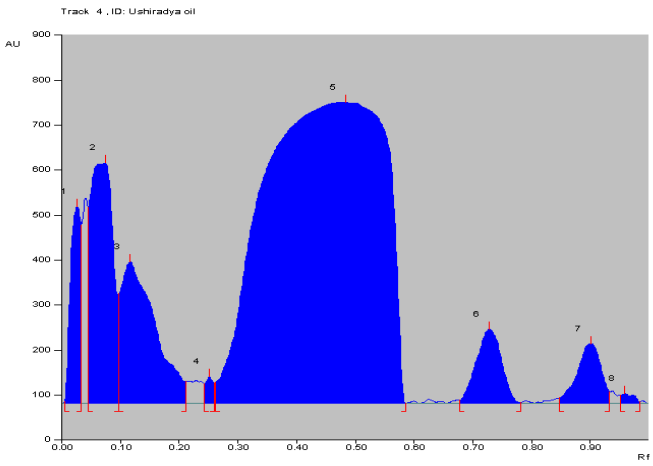
Plate 1: Microscopic characters of *Ushiradya Taila.*



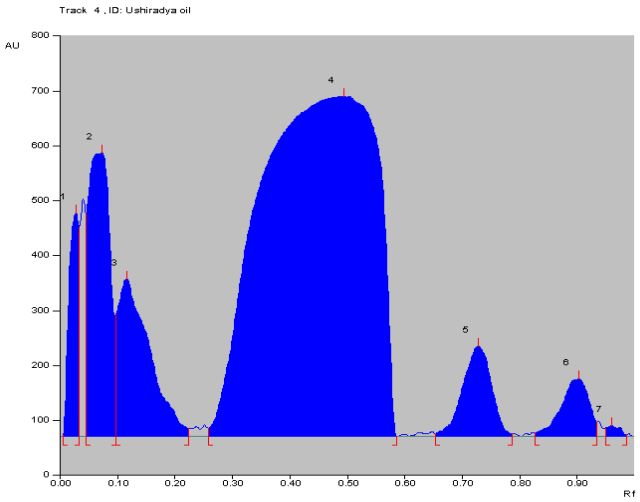
Chromatographic Results (Peak display) Before soray of *Ushiradya Taila* Short ultra violet (254 nm).



Chromatographic Results (Peak display) Before soray of *Ushiradya Taila* long ultra violet (366 nm).



Chromatographic Results (Peak display) after soray of *Ushiradya Taila* Short ultra violet (254 nm).



Chromatographic Results (Peak display) after soray of *Ushiradya Taila* Short ultra violet (366 nm).

Figure 2: HPTLC evaluation of *Ushiradya Taila.*

DISCUSSION

Pharmacognostical evaluation showed that the *Ushiradya Taila* contains all the ingredients which were observed in the microscopical characters, this shows that the purity and quality of the product. Phytochemical analysis showed that material gains no moisture during storage, so quality of the product is not affected. The obtained values of these tests were found within normal limits which indicate good quality of product. All Physico-chemical parameters of *Ushiradya Taila* are Refractive index of *Ushiradya Taila* was found 1.4840., specific gravity 0.9189, iodine value 73.329, saponification value 112.0812 and acid value is 4.56. All tests

are normal in limit and shows the product is of good quality and better results in the diseases. HPTLC results showed that the 9 spots at 254 nm and 3 spots at 366 nm.

CONCLUSION

Pharmacognostical and Phyto-chemical evaluation of *Ushiradya Taila* showed the specific characters of ingredients which were used in the preparation, there is no major change in the microscopic structure of the drug during the pharmaceutical processes of preparation of *Taila*. All the Pharmaceutical parameters analysed within the allowable range and it may be used as standard reference for further research work and clinical studies.

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