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PHARMACOGNOSTICAL AND PHYTOCHEMICAL STANDERDIZATION OF *DASHMOOLA TAILA* - AN AYURVEDIC POLYHERBAL FORMULATION

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ABSTRACT

WHO defines normal birth as-spontaneous in onset, low-risk at the start of labour and remaining so throughout labour and delivery. *Acharya Charaka* has used a new term "*Prasuti Maruta'* It can hence be said that the function of *Apana Vayu* (*Prasuti Maruta*) to expel the foetus. So, the *Prakruta Apana* and *Vyana Vayu* are very much essential for *Prakruta Prasava*. *Dashmoola Taila* is an Ayurvedic poly herbal formulation used for *Basti* for normalization of these *Vayus* which are very essential for *Prakruta Prasava*. *Dashmoola Taila* has the properties of *Tridoshaghna*, *Parshvashulahara*, and *Shothahara*. The present work was carried out to standardize the finished product "*Dashmoola Taila"* to confirm its identity, quality and purity. Pharmacognostical and phyto-chemical observations revealed the specific characters of all active constituents used in the preparation. The pharmacognostical study reveals the presence of Lignified fibres, Prismatic crystals, Border pitted vessels, Rhomboidal crystal, Scleroids, Stone cells etc. Pharmaceutical analysis showed that the loss on drying value was 0.020 w/w, Specific gravity was 0.916 Refractive index was 1.4810, Iodine value was 23.19, Saponification value was 155 and Acid value was 4.2836. HPTLC finger printing profile of *Dashmoola Taila* revealed 5 spots at 254nm, 5 spots on 366nm.

KEYWORDS: Dashmoola Taila, Prasuti Maruta, *Prakruta Prasava*, Pharmacognosy.

INTRODUCTION

WHO defines normal birth as: "spontaneous in onset, low-risk at the start of labour and remaining so throughout labour and delivery. The infant is born spontaneously in the vertex position between 37 to 42 weeks of pregnancy. After birth, mother and infant are in good condition"[.] In a pregnant woman, the *Prakruta* function of *Apana* and *Vyana Vayus* are very much essential for normal delivery. At the time of parturition, if any one of it is vitiated, then leads to *Vilambita Prasava* (Prolong labour*), Moodha Garbha (*Obstructed labour*)* etc. which convert the *Prasava* from normal to abnormal. In Ayurvedic literature, many drugs and procedures are mentioned to achieve *Prakruta prasava* as a part of *Garbhini Paricharya.*

Basti alone is considered as the major procedure for the *Anulomana* of *Vata*. *Apana Vayu* plays an important role along with *Vyana Vayu* for the contraction and relaxation of uterus. Uterine muscles are involuntary muscles. *Vyana Vayu*, which is situated in *Hridaya* is said to cause *Gati* (motion), *Akshepa* (contraction), *Prasarana* (relaxation) etc. When, proper time of *Prasava* comes, the *Vyana Vayu* stimulates the act of contraction and relaxation in the uterine muscles and due to its influence, *Apana Vayu* becomes active to expel the *Garbha* outside the *Garbhasaya*.

In the context of mechanism of normal labour, Acharya Charaka[1] has used a new term "Prasuti Maruta' Apana Vayu controls specifically the process of expulsion of foetus, it can be referred to Prasuti Maruta. iHaving a special function of Garbha Nishkramana. It can hence be said that the function of Apana Vayu particularly of Prasuti Maruta is to expel the foetus out, while of Vyana Vayu is to stimulate the myometrium of the uterus. So, in a pregnant woman, the Prakruta Apana and Vyana Vayus are very much essential for normal delivery. For that Acharyas have instructed to give Basti.

Anuvasana Basti is *Sneha Basti*. Due to *Snehana* property, the abdomen, flanks, sacrum and all genital organs become *Snigdha*. This *Snigdha* property removes the *Rukshata* of *Vayu* and thus it controls the exaggerated *Vata*. At the same time, for expulsion of foetus, the stretching of ligaments is very much essential, when the *Vayu* is in its normal direction and when the muscles and ligaments have *Snigdha* properly, then the expulsion of foetus from the birth canal is very easy. *Dashmoola Taila Basti* is the best drug for *Vatanulomana*. Its normal function is expulsion of foetus through natural passage without any complication.

MATERIALS AND METHODS

Collection, Identification 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

Table No.1 Ingredients of Dashmoola Taila[2]

Sr. No.	Ingredients	Latin name	Part used	*Kalk dravya*
1	*Bilva*	*Aegle marmelous* Corr.	*Bark*	*250gm*
2	*Agnimantha*	*Premna mucronata* Roxb.	*Bark*	*250gm*
3	*Shyonaka*	*Oroxyllum indicum* Vent	*Bark*	*250gm*
4	*Patala*	*Stereospermum suaveoleus DC*	*Bark*	*250gm*
5	*Gambhari*	*Gmelina arborea Linn.*	*Bark*	*250gm*
6	*Shalparni*	*Desmodium gangeticum* DC.	*Whole plant*	*250gm*
7	*Prishniparni*	*Uraria picta* Desv.	*Whole plant*	*250gm*
8	*Brihati*	*Solanum indicum* Linn.	*Whole plant*	*250gm*
9	*Kantakari*	*Solanum surrattense Burm.f.*	*Whole plant*	*250gm*
10	*Gokshura*	*Tribulus terrestris* Linn.	*Whole plant*	*250gm*
11	*Tila Taila*	*Sesamum indicum* Linn.	Seeds oil	*10 liter*
13	*Godugdha*	*Cow milk*		*40 liter*

METHOD OF PREPARATION OF *DASHMOOLA TAILA*[3]

- *Tila Taila*:- 10 liters
- *Go-dugdha*:- *40* liters
- *Kalka:- Dashmoola* 2.5 kg

  250 gm of each *Dashmoola Dravyas*.

Preparation of *Taila*

- *Tila Taila* in amount of 10 liters, 2.5kg *Dashmoola* for *Kalka* and 40 liters of *Godugdha* were used *in the preparation* of *Taila Paka.*
- *Kalka, Taila and Dugdha* will be mixed together for *Snehapaka.*

All examinations for *Snehapaka* will be done.

Pharmacognostical evaluation of ingredients of *Dashmoola Taila*

Organoleptic study

Individual powders were subjected for various sensory characters like colour, taste, odour, and touch were carefully noted.[6-11]

Organoleptic properties of *Dashmoola Taila* (Table no.2)

Rupa (Colour)	Light brown
Rasa (Taste)	Sweetish, Astringent
Gandha (Odour)	Characteristic
Sparsha (Consistency on Touch)	Liquid ,sticky

Powder microscopy

The powder of respective parts taken in glass slide covered with cover slip and observed under the Carl Zeiss microscope with stain (Phloroglucinol and Conc. HCl) and without stain, to study the characters. The microphotographs were taken by using Carl Zeiss binocular attached with camera.[4]

Physicochemical study

Dashmoola Taila was analyzed by using qualitative and quantitative parameters at Pharmaceutical Chemistry Laboratory, Institute for Post Graduate Teaching & Research in Ayurveda, Gujarat Ayurved University, Jamnagar by using various standard physico-chemical parameters such as Loss on drying, water soluble extract, alcohol soluble extract etc.[5]

HPTLC

First of all take a drop of sample and diluted with haxen (as per require) then application of the sample at the one end of the precoated plate through linomat V (150µl/sec) then on the sample zone again applied 7% alcoholic KOH then leave for 10-15 minutes at 60-80ºc in oven. The plate is then developed by the suitable mobile phase in a chromatographic chamber which was previously saturated with the mobile phase. Then after development it is visualized into day light, short UV (254nm) and/or by derivatiza reagent. The Rf value and the colors of resolved bands and finger printing profiles are recorded.[12]

RESULTS AND DISCUSSION

Organoleptic characters of *Dashmoola Taila* (Table no 3)

Sr. No.	Character	Results
1	Color	Greenish Black
2	Odor	Aromatic
3	Taste	*Kashaya* (Astringent)
4	Touch	Hard

Microscopic Study

The diagnostic microscopically characters of individual powder are shown in PLATE 1-30 (Figure 1-30) in *Bilva* Starch simple & compound, Fiber with crystal, Pitted stone cell and Prismatic crystal are present, in *Agnimantha* Prismatic crystals, Scelroids and stone cells, in *Shyonaka* Lignified parechyma cork,in *Patla* Crystal fibres, stone cells and Lignified cork, in *Gambhari* fibres and vessels, tannin content and stone cell, in *Shalparni* Pitted & Annular vessel and trichome, in *Prushanaparni* simple unicellular trichome, pitted vessle, and prismatic crystal, in *Bruhati* Pitted Vessels with Starch Grains, simple trichome and starch grains, in *Kantakari* Multi branch Trichome with Fibers, stone cell, starch grain with tannin and Warty Trichome and in *Gokshura* Epidermal Cells and stone cells are present. (plate 1-30).

Physicochemical tests

Physicochemical analysis of *Dashmoola Taila* (Table no 4)

S. No	Test	Sample Result
1	Acid value	4.2836
2	Loss on Drying	0.020
3	Specification value	155
4	Iodine value	23.19
5	Specific Gravity	0.916
6	Refractive index	1.4810

HPTLC study results

On analyzing under demonstrator at 254 nm, the chromatogram showed 5 peaks and at 366nm chromatogram also showed 5 peaks. Three dimensional densitogram (3D) at 254 and 366nm shows comparative Rf value of sample with standard.

Table The findings of HPTLC at 366nm and 254nm UV light (Methanol Extract) (Table no 5)

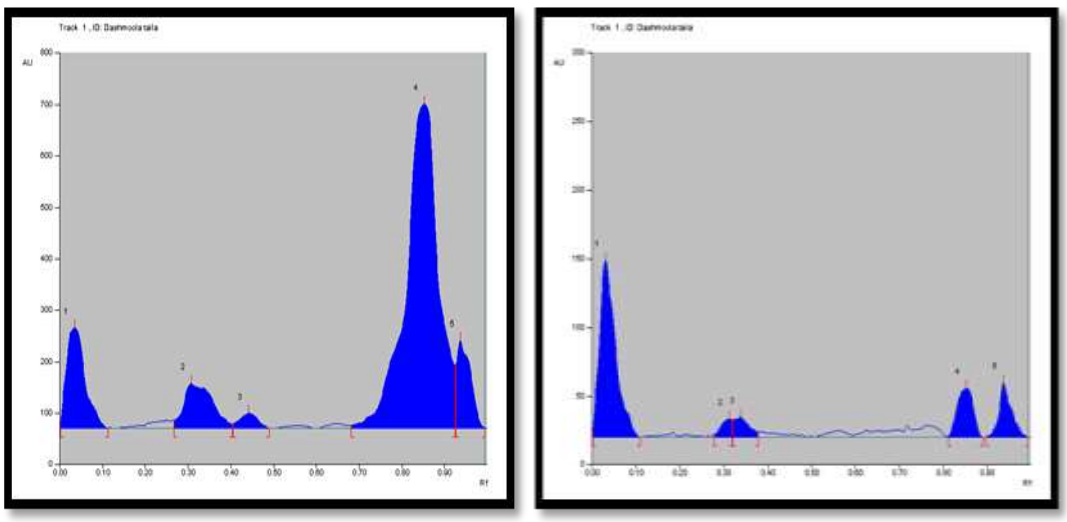
Wavelength	Sports	Rf Value
At 254 nm	5	0.03, 0.31, 0.44, 0.85, 0.94
At 366 nm	5	0.03, 0.31, 0.34, 0.85, 0.94
Vaniline sulphuric acid (after spray)	3	0.27, 0.14, 0.17

DISCUSSION

Pharmacognostical evaluation showed that the *Dashmoola Taila* contains all the ingredients, which were observed in the microscopical characters, this shows that thepurity 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 *Dashmoola Taila* are acid value is 4.2836,saponification value is155, iodine value is 23.19, refractive index is 1.4810, Specific gravity is 0.916.All tests are normal in limit and shows the product is good in quality and better results in the diseases. HPTLC results showed that the 5 spots at 254 nm and also 5 spots at 366 nm.

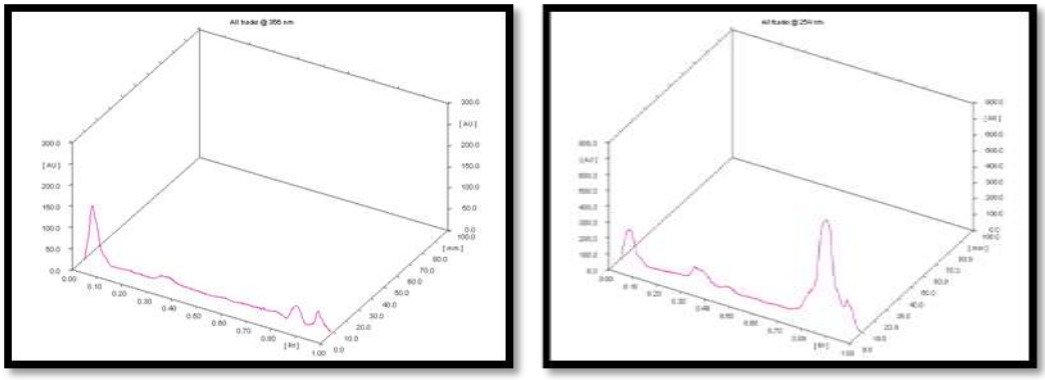
CONCLUSION

Pharmaogonostical and phytochemical evaluation of *Dashmoola Taila* illustrated the specific characters of all ingredients which are used in the preparation. The oleoresin, pitted vessels, prismatic crystal, calcium oxalate crystals are observed in the ingredients. All the physic chemical parameters like acid value, saponification value, iodine value, refractive index, specific gravity analyzed were within the normal range. All the results showed the quality of the preparation is standard .further studies may be carried out on it. On the basis of observations made and results of experimental studies, this study may be beneficial for future researchers and can be used as a reference standard in the further quality control researches.



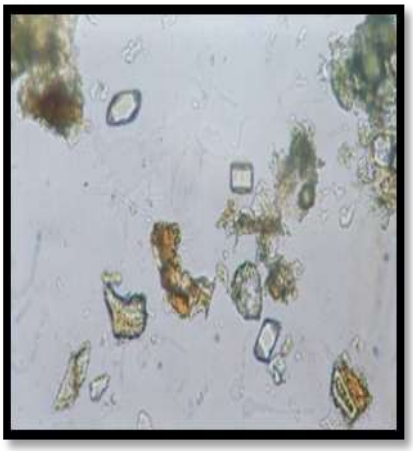
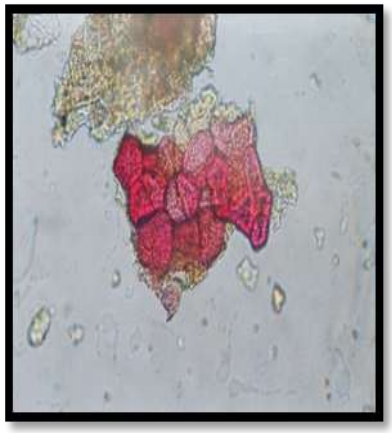
(a) Densitometry at 254nm **(b) Densitometry at 366 nm**

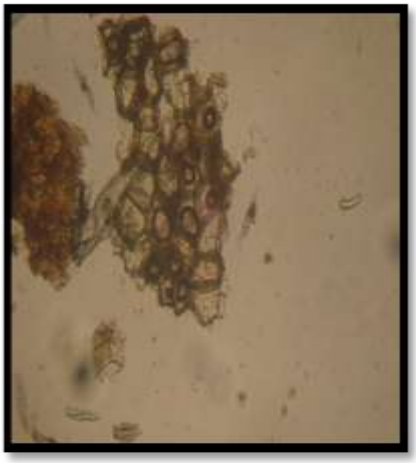
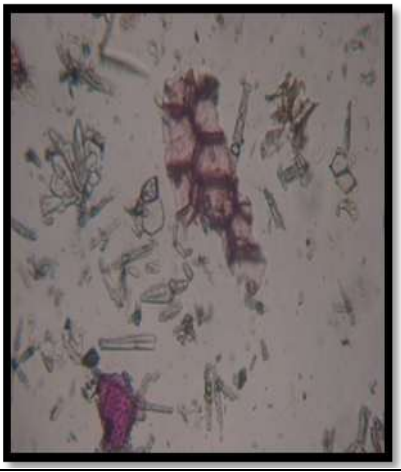
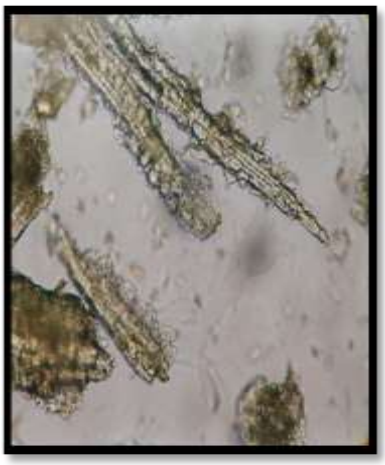
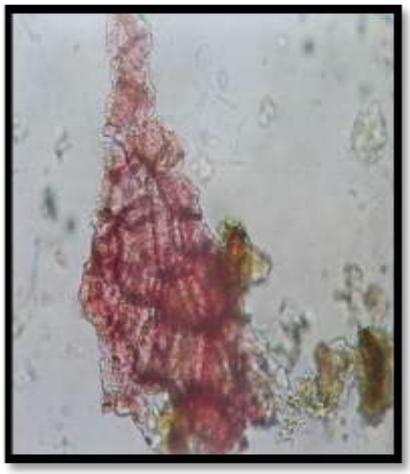
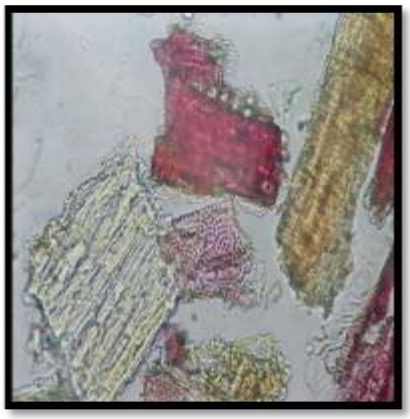
Plate no.1, 2 Densitogram of *Dashmoola Taila* at 254 and 366nm

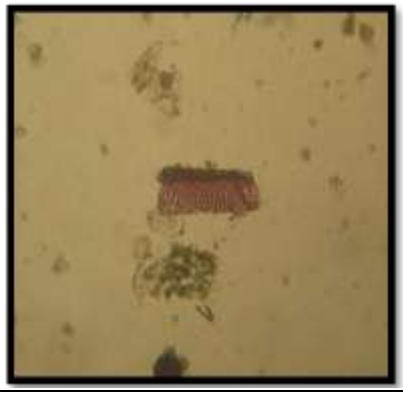
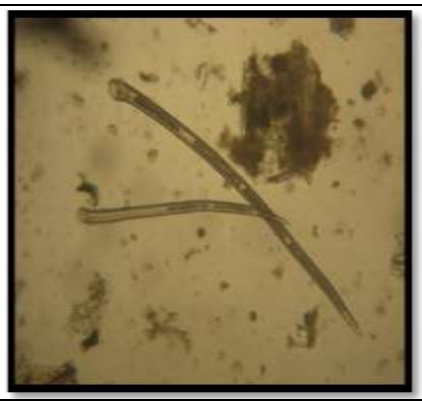
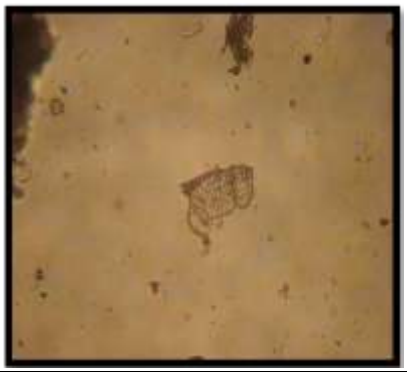
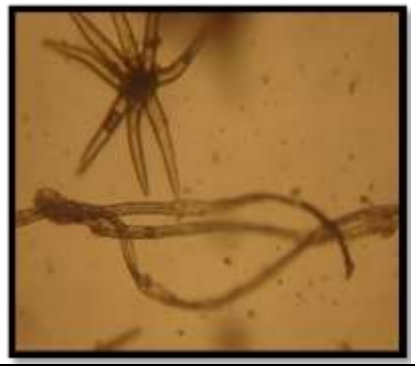
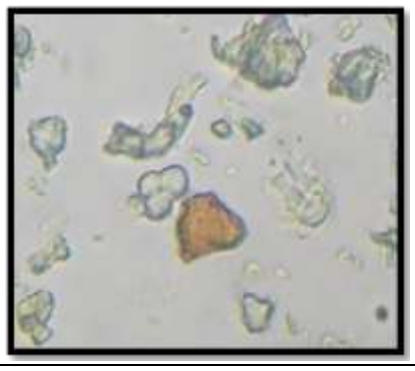


254nm **354nm**

Plate no.3, 4 Three dimensional HPTLC (3D) Densitogram

		
1. Starch simple &compound of *Bilva*	**2. Fiber with crystal of *Bilva***	**3. Pitted stone cell of *Bilva***
		
4. Prismatic crystals of Agnimantha	**5. Stone cells of Agnimantha**	**6. Scelroids of Agnimantha**

		
7. Lignified cork of *Shyonaka*	**8. Lignified parenchyma *Shyonaka***	**9. Stone cells of *Shyonaka***
		
10. Stone cells of Patla	**11. Crystal fibres of Patla**	**12. Lignified cork of Patla**
		
13. fibres and vessels of Gambhari	**14. Tannin content of Gambhari**	**15. Stone cells of Gambhari**

		
16. Annular vessels of *Shalparni*	**17. Trichomes of *Shalparni***	**18. fibres of Shalparni**
		
19.Lig.parenchyma cells of Prushanaparni	**20. Pitted vessel of Prushanaparni**	**21. Simple trichome of Prushanaparni**
		
22. Pitted Vessels of Bruhati	**23. Stone Cells of Bruhati**	**24. Simple trichome of Bruhati**
		
25. Multi branch Trichome*kantakari*	**26. Stone cells of *Kantakari***	**27. Starch grain & tannin *Kantakari***

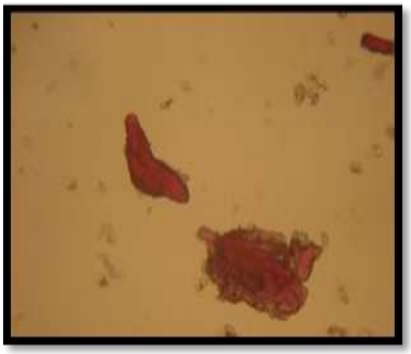
		
28. Stone cells of *Gokshura*	**29. Epicarp cells of Gokshura**	***30.* Lignified fibres of *Gokshura***

Plate no.5, phptos 1-30

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