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PHARMACOGNOSTICAL AND PHARMACEUTICAL ANALYSIS OF *DASHMOOLA TAILA* –AN AYURVEDIC POLYHERBAL FORMULATION FOR *KARNANADA* (TINNITUS)

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ABSTRACT

Background: *Karnanada* can be symptomatically correlated with Tinnitus, in which patient is presenting with various sensation of the sounds in the ear. In this condition vitiated *Vata Dosha* enter into *Shabdavaha Srotas* (Auditory canal) by *Vimarga Gamana* and produces different types of sound in ear. The treatment for *Karnanada* is given *Ghritapana*, *Rasayana*, *Avyayama*, *Ashirasnana*, *Brahmacharya*, *Akathan*[1] and *Karnapoorana* and *Nasya Karma* have been mention in some Ayurvedic texts. In present study *Dashmoola Taila Karnapoorana* and *Nasya* have shown encouraging clinical outcome in *Karnanada*. **Aim:** To analyze the pharmacognostical and pharmaceutical evaluation of *Dashmoola Taila*. **Material and Method:** *Dashmoola Taila* was subjected to pharmacognostical and physiochemical analysis such as microscopic study, acid value, specific gravity etc. **Result:** Pharmacognostical study showed the presence of contents such as cork cells and bordered pitted vessels of *Shalparni*, Prismatic crystals and Starch grains of *Prishniparni*, Stone cells & Scleroids of *Brihati*, Pitted vessels and Fibres of *Kantakari*, Prismatic crystals of *Gokshura*, Cork cells of *Bilwa*, Starch grains of *Agnimantha*, Reticulate vessels of *Shyonak*, Group of stone cells & scleroids of *Patala*, Rosette crystals of *Gambhari*. Physico chemical constants like acid value, specific gravity, saponification, iodine value, refrective index, HPTLC(High Performance Thin Layer Chromatography) where evaluated along with organoleptic characteristics. **Conclusion:**

Pharmacognostical and physicochemical analysis study confirm that all the characters were found in ingredient drugs of *Dashmoola Taila.*

KEYWORDS: *Dashmoola Taila,* HPTLC, *Karnanada,* Pharmaceutics, Pharmacognocy.

INTRODUCTION

Karnanada is a disease condition of ear, in which patient is presenting with various sensation of the sounds in the ear like, *Bheri* (cuttle drum sound), *Mrudunga* (roaring sensation) and *Shankha* (ringing sensation).[2] The major cause mentioned in Ayurvedic text for *Karnaroga* is to be in exposure to dew, swimming, fingering in ear canal, improper insertion of unsterilized instruments and probes, unskillful attempt at the removal of foreign body entered in ear canal. These factors results to vitiation of *Vata Dosha*. This vitiated *Vata Dosha* enter into *Shabdavaha Srotas* (Auditory canal) by *Vimarga Gamana* and produces different types of sound and in such situations *Karnanada* like condition arises.

Tinnitus can be correlated symptomatically to *Karnanada*. It is characterized by annoying ear noises which can be soft as a whistle or loud enough to be completely debilitating.[3] The treatment in Ayurveda for *Karnanada* given as *Ghritapana, Rasayana, Avyayama, Ashirasnana, Brahmacharya, Akathana.*[4]

Karna being one of the *Adhisthana* of *Vata Dosha*[5], *Snehana* becomes important to control the localized vitiation of *Vata Dosha*. Hence, *Karnapoorana* also gains importance in the management of the disease, same as *Acharya* has mention *Nasya* in *Karnaroga*. The use of *Sneha* specially *Taila* helps to subside *Vata Dosha* and clears the *Srotas* of the *Karna. Dashmoola* is possessing *Vata Shamaka* properties due to this it is a drug of choice to control *Karnanada* (Tinnitus).

MATERIALS AND METHODS

Collection of Raw materials for *Dashmoola Taila*

The raw material of *Dashmoola Taila* were produced from the Pharmacy, Gujarat Ayurved University, Jamnagar.

Method of preparation of *Dashmoola Taila*

Ingredients of *Dashmoola Taila* (Table No.1)

Dashmoola Kwatha was prepared by adding water to it and it was heated till reduced to one fourth and filtered through a cloth. For preparation of *Kalka* fine powder of *Trikatu,*

Panchakola, Jeeraka, Shyaha Jeeraka, Sarshapa, Saindhava, Yavakshara, Nishotha, Haridra, Daru Haridra was prepared. Then to make fine paste, small quantity of water was added to it. *Kalka* and *Drava* were added to *Moorchita Tila Taila*, boiled and stirred well continuously, so that *Kalka* could not adhere to the vessel. Then it was heated with constant stirring maintaining the temperature between 80º and 90º during the first hour of heating. Then it was stopped and allowed to stand overnight. Heating was again started on next day while keeping a watch for *Sneha Paka Lakshana* like *Phena Udagamana* and the *Kalka* for formation of *Varti* (*Madhyama Paka Lakshana*). Heating was stopped when *Varti* was formed and froth subsided. *Varti* was tested for absence of crackling sound. When only *Taila* will remained, it will be filtered with four fold cloth and preserved in air tight glass container.

Organoleptic Characters

Various organoleptic characters like color, odour, taste and touch of *Dashmoola Taila* were observed and recorded. (Table No.2).

Microscopical Evaluation of Dashmoola Taila

Microscopial photographs of *Dashmoola Taila* showed cork cells and bordered pitted vessels of *Shalparni*, Prismatic crystals and Starch grains of *Prishniparni*, Stone cells & Scleroids of *Brihati*, Pitted vessels and Fibres of *Kantakari*, Prismatic crystals of *Gokshura*, Cork cells of *Bilwa*, Starch grains of *Agnimantha*, Reticulate vessels of *Shyonak*, Group of stone cells & scleroids of *Patala*, Rosette crystals of *Gambhari*.

Physico-chemical Analysis

Physico-chemical analyses were carried out by following the parameters. Physico‑chemical analysis like referactive index at 40 ^{0}C is 1.46, specific gravity at room temp. at 32 ^{o}C is 0.9084, acid value is 8.76, Iodine value is 17.3, Saponification value is 210.67. Results were mentioned in the Table no. 3.

High Performance Thin Layer Chromatography (Hptlc)

High Performance Thin Layer Chromatography (HPTLC) was carried out after making appropriate solvent system with Methanolic extract of *Dashmoola Taila*. On performing HPTLC, visual observed *Taila* on under UV light showed few spots but on analyzing under densitometer at 254 nm and 366 nm it resulted into 6 and 6 spots respectively. Results of HPTLC are given in Table no. 4 and densitogram is shown in plate 2.

RESULT AND DISCUSSION

Dashmoola Taila pharmacognosy and pharmaceutical evaluation were performed which is a potent medicine in the management of *Karnanada*. In physiochemical analysis; referactive index at 40^0C is 1.46, specific gravity at room temp. at 32^o C is 0.9084, acid value is 8.76, iodine value is 17.3, saponification value is 210.67. Some 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.

<table>
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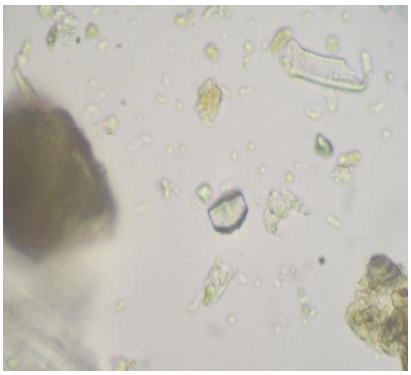
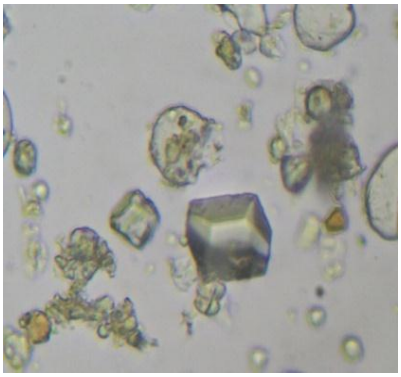
<td> 
Disturbed Scleriform Vessels Ofagnimantha</td>
<td> 
Rhomboid Cell of Shalparni</td>
<td> 
Prismatic Crystal of Chavya</td>
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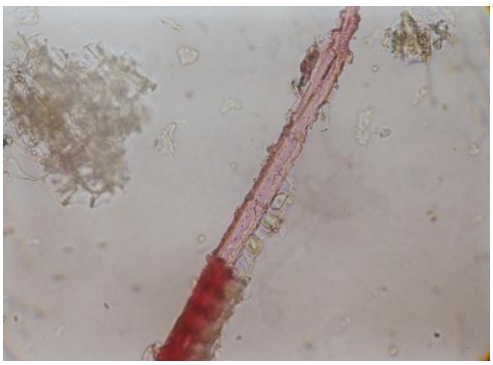
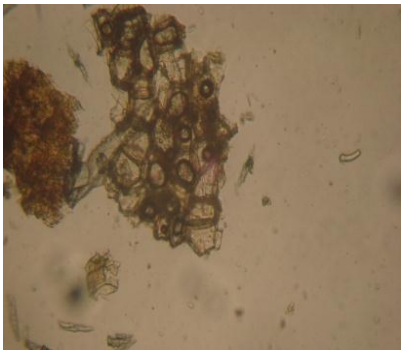
<td> 
Bilwa Fibre With Crystal</td>
<td> 
Lig.Parenchyma Cell of Prishnaparni</td>
<td> 
Shyonaka Lignified Cork</td>
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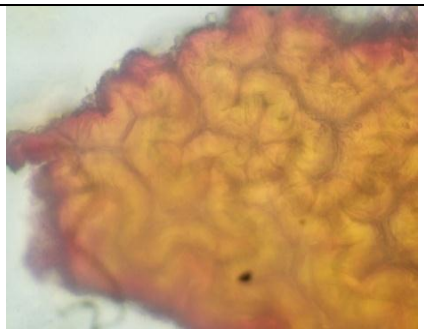
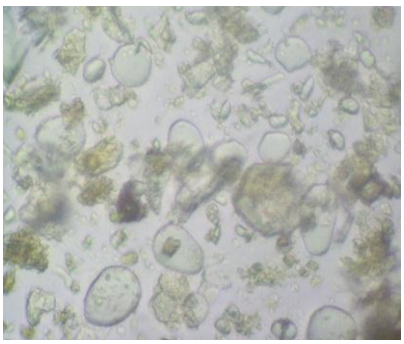
<td> 
Bottle Neck Shaped Stone Cell of Pippali</td>
<td> 
Brihati Lignified Testa of Seed</td>
<td> 
Starch Grains of Sunthi</td>
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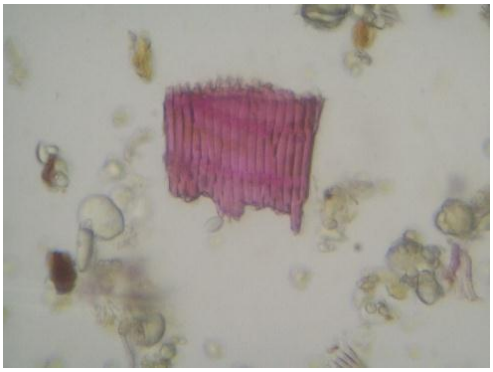
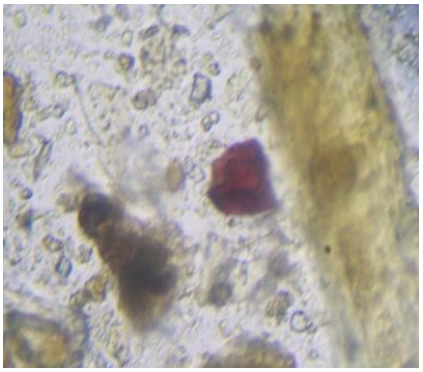
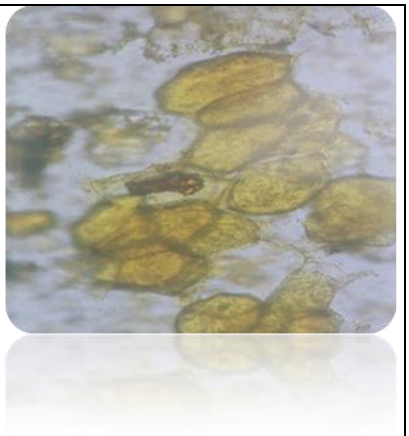
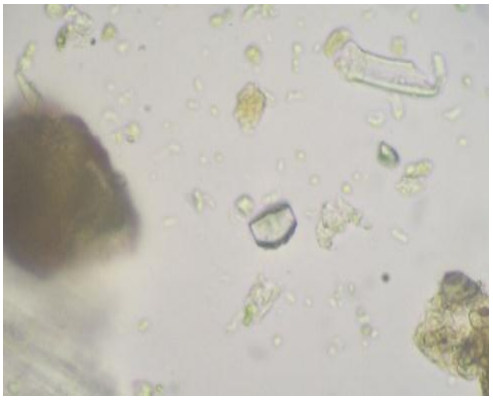
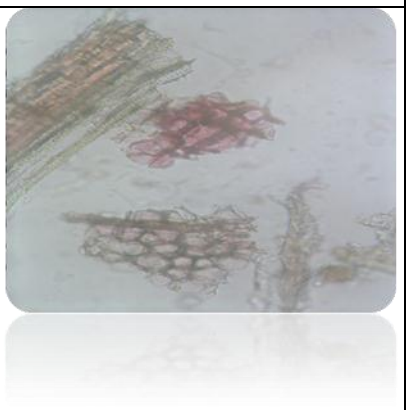
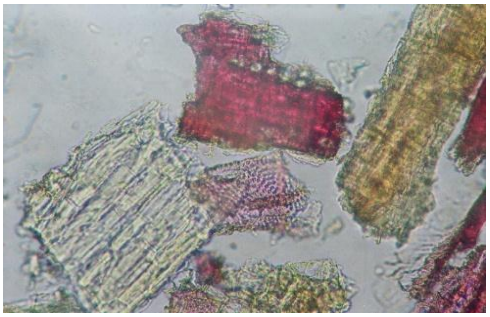
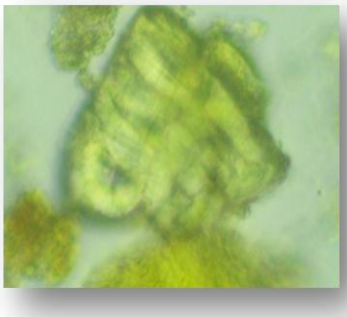
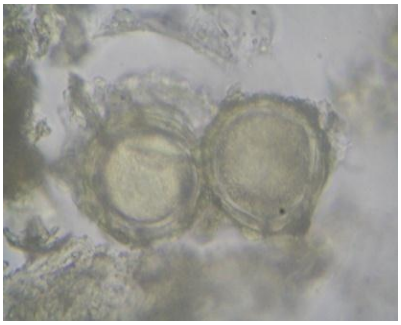
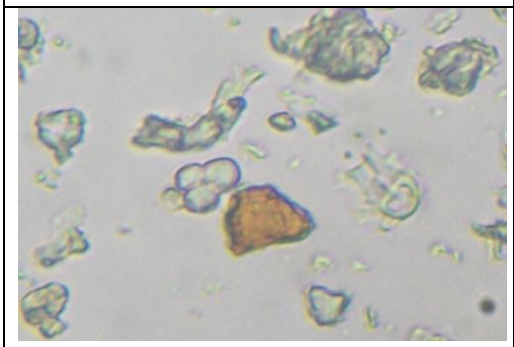
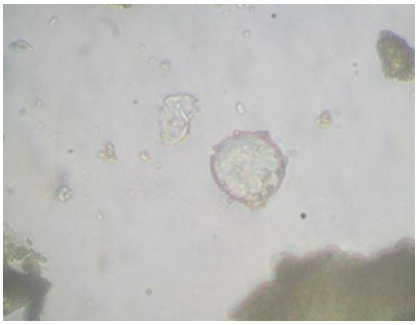
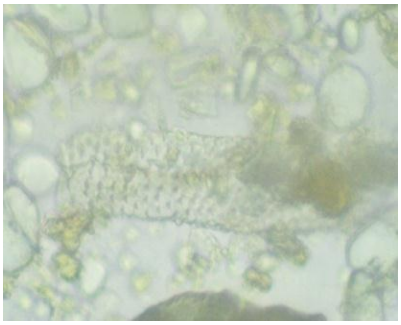
 **Pitted Vessels of *Chitraka***	 **Tannin Content of *Nisotha***	 **Oleorasins of *Haridra***
 **Rhomboid Cell of *Shalparni***	 **Lig.Parenchyma of *Prishnaparni***	 **Lignified Parenchyma of *Daruharidra***
 ***Crystal Found In Fibre of Gambhari***	 ***Group Stone Cells of Gokshura***	 **Vittae Cells of *Jeeraka***
 **Starch Grain With Tannin- *Kantakari***	 **Oil Globule of *Maricha***	 **Bordered Pitted Vessels of *Patha***

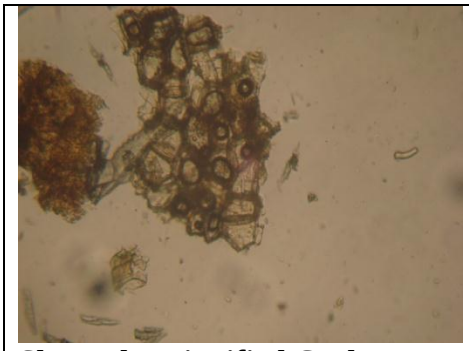
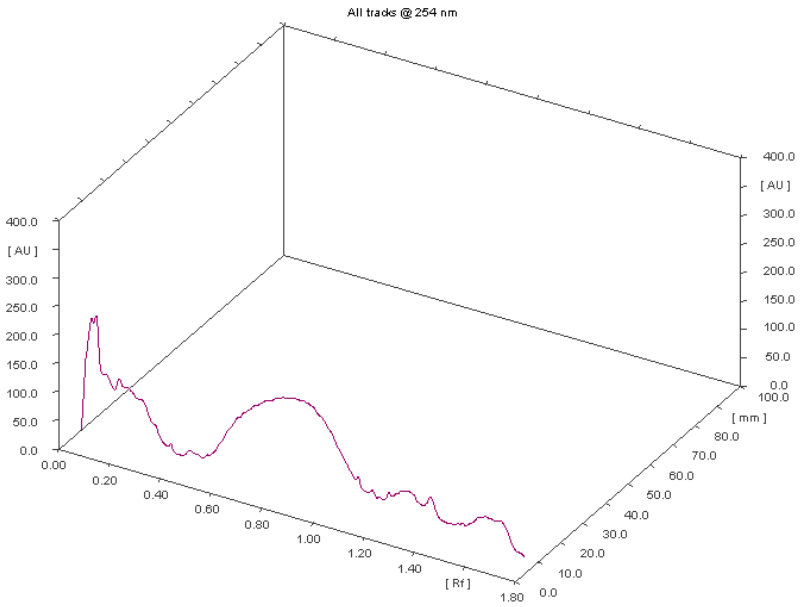
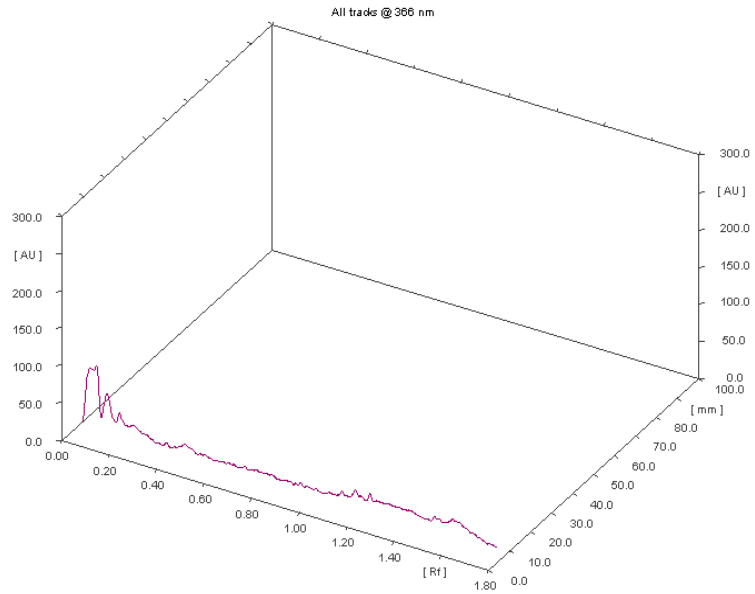
	
Shyonaka Lignified Cork	**Pitted Parenchyma of Yavani**

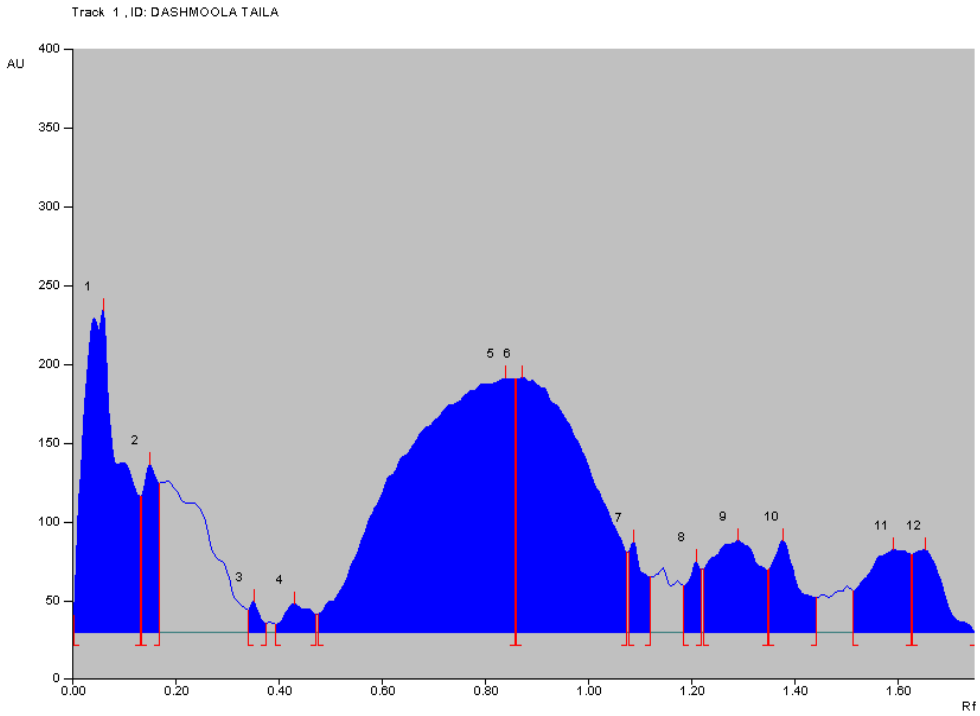
Plate No. 2



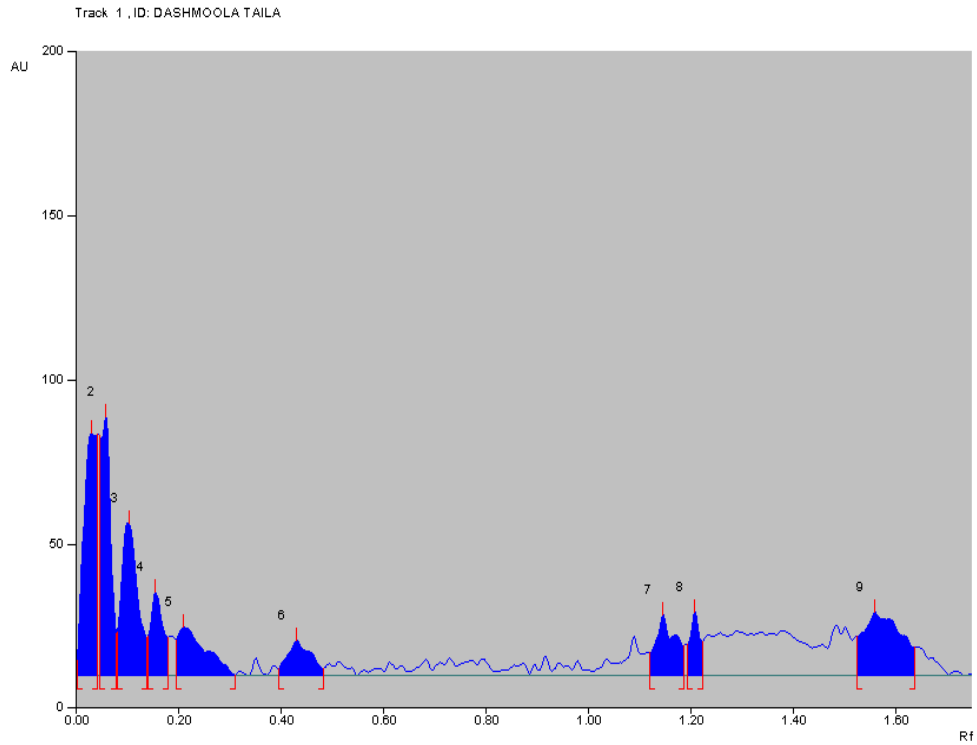
3D Graph: 254 nm of *Dashmoola Taila*



3D Graph: 366nm of *Dashmoola Taila*



Chromatographic Results (Peak display) of *Dashmoola Taila* at Short ultra violet (254 nm).



Chromatographic Results (Peak display) of *Dashmoola Taila* at Short ultra violet (366 nm).

Table No. 1: (B.R., AFI; *Shiro Rogadhikara, Shloka*- 91-95).

No	Sanskrit Name	Latin Name	Part Used	Part
1	*Dashamoola*			1
	a) Bilwa	*Aegle marmelos* (Linn.)	*Moola*	
	b)Gambhari	*Gmelina arborea* (Roxb.)	*Moola*	
	c)Agnimantha	*Premna mucronata* (Burm.f.)	*Moola*	
	d)Sonapatha	*Oroxylum indicum* (Linn.)	*Moola*	
	e)Patala	*Stereo spermumsuaveolens*(DC)	*Moola*	
	f)Brihati	*Solanum indicum* (Linn.)	*Moola*	
	g)Kantakari	*Solanum surrattense* (Burm.f.)	*Moola*	
	h)Gokshura	*Tribulus terrestris* (Linn.)	*Moola*	
	i) Salparni	*Desmodium gangeticum* (Linn.)	*Moola*	
	j)Prishniparni	*Uraria picta* (Desv.)	*Moola*	
2	*Trikatu*			3/5 part
	a)Shunthi	*Zingiber officinalale* (Roscoe.)	*Kanda*	
	b)Pippali	*Piper longum* (Linn.)	*Phala*	
	c)Maricha	*Piper nigram* (Linn.)	*Phala*	
3	*Panchkola*			1 part
	a)Shunthi	*Zingiber officinalale* (Roscoe.)	*Kanda*	
	b)Pippali	*Piper longum* (Linn.)	*Phala*	
	c)Pippali Moola	*Piper longum* (Linn.)	*Moola*	
	d)Chavya	*Piper longum* (Linn.)	*Phala*	
	e)Chitraka	*Plumbago zeylinicum* (Linn.)	*Moola*	
4	*Jeeraka*	*Cominum cyminum* (Linn.)	*Phala*	1/5part (4 to11)
5	*Shyaha Jeeraka*	*Carum carvi* (Linn.)	*Phala*	
6	*Sarshapa*	*Brassica campestris* (Linn.)	*Beeja*	
7	*Saindhava*	*Rock salt*	-	
8	*Yavkshara*	*Hordeum vulgare*	-	
9	*Nishotha*	*Operculina turpethum* (Linn.)	*Moola*	
10	*Haridra*	*Curcuma longa* (Linn.)	*Kanda*	
11	*Daru Haridra*	*Berberis aristata* (Roxb.)	*Moola,Twaka*	
12	*Nirgundi Swarasa*	*Vitex negundo* (Linn.)	*Moola,Twaka,Patra, Pushpa,Beeja*	Equall to all contents
13	*Ardraka Swarasa*	*Zingeber officinale* (*Roxb.*)	*Kanda*	Equall to all contents
14	*Tila Taila*	*Sesamum indicum* (Linn.)	-	Equall to all contents

Table No. 2.

Sr. No.	Characters	Observed
1	Colour	Greenish Yellowish
2	Odour	Agreeable
3	Taste	Bitter

Table No. 3.

Sr.No.	Parameters	*Dashmoola Taila*
1.	Specific Gravity at room temp. at 32^0 C	0.9084
2.	Referactive Index at 40^0 C	1.46
3.	Acid value	8.76
4.	Iodine Value	17.3
5.	Saponification	210.67

Table No. 4.

Sr. No.	Samples	Conditions	No. Of Spots	Rf
1	*Dashmoola Taila*	Short UV–254 nm	6	0.06,0.15,0.35,0.43,0.84,0.87
		Long UV–366 Nm	6	0.03,0.06,0.10,0.16,0.21,0.43

CONCLUSION

Pharmacognostical study confirm that all the characters were found in ingredient drugs of *Dashmoola Taila.* The physicochemical analysis inferred that the formulation meets maximum qualitative standards and parameters. The Outcome of the study can be taken as standard references for the further studies.

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