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INGREDIENTS IDENTIFICATION AND PHARMACEUTICAL EVALUATION OF *NISHADI TAILA*- AN AYURVEDIC POLYHERBAL FORMULATION

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ABSTRACT

Ayurveda is known as science of life. Several medicines are explained in *Ayurveda* to cure the diseases. *Bhavprakash* has described the effect of *Nishadi Talia* in the management of *Mukharoga*. There has been an increase in demand for the Phyto-pharmaceutical products of Ayurveda. So a new pharmaceutical preparation in the form of *Nishadi Taila* tried to standardize which is a classical drug formulation. The present study deals with the pharmacognostical identification of ingredients of *Nishadi Taila* and its Physico-Chemical analysis. Pharmacgnostical study containing both macroscopic and powder microscopy of raw drugs revealed the identity, quality and purity of all the constituents of *Nishadi Taila*. Pharmacognostical and phyto-chemical observations revealed the specific characters of all active constituents used in the preparation. Here *Nishadi Tail* is used in the management of *Sarvasara Mukharoga* . *Acharya Susruta* described three types of *Sarvasara Mukharoga*. In the condition oral submucous fibrosis (OSMF) all this three types of *Sarvarsara Mukharoga* symptoms are seen. The presence of oil globules, endosperm fragments, pollen grain cork cells were the characteristic features observed in the microscopy of drug combination. Refractive index of *Nishadi Taila* found 1.4820, specific gravity 0.9148, iodine value 92.68, saponification value183.41 and acid value is 6.05.

KEYWORDS: *Nishadi Taila*, Pharmacognosy, *Sarvasara Mukharoga*, OSMF.

INTRODUCTION

Oral Cavity, work as reflector of the body health by acting as gateway of the alimentary canal and in that way it is considered to be one of the most important part of the *Urthwajatru.* Disease affecting the whole *Mukha* are considered under the heading of *Mukharogas*. *Sarvasara Mukharoga* basically important diseases among all the diseases because entire oral cavity as well as general health and hygiene revolve. Kaval/ *Gandusha* is the process of holding any medicated liquid like *Kwatha, Swarasa, Madhu, Ghrita, Taila, Gomutra, Ushnodaka* etc. in the mouth which can be move inside.[1] *Acharya Charaka* has given importance of *Taila Gandusha Dharana* as it gives strength to jaw bone, voice, facial muscles; helps in developing taste; one will never suffer from dryness of mouth & throat, cracked lips, tooth destruction, toothache, sensitivity of teeth by sour foods & drinks. Thus roots of teeth become strong & one can chew even hard foods easily.[2] There are four types of *kavala* descried by *Acharyas- Snehika, Prasadana, Shodhana, Ropana*. The disease OSMF affects the oral cavity and symptoms of this diseases shown in *Sarvasara Mukharoga* and mainly *Vata* and *Pitta Pradhana sarvasara Mukharoga*. In ability to mouth opening (*KrucchenVivrunoti – VatajaMukharoga*).[3] Burning sensation in mouth *(Daha-PittajaSarvasara)* [4]pain in mouth *(Toda-VatikaSarvasara)*[5], blanching of the oral mucosa *(AntahkapolamashrityaShyavpandu- Kapharbuda)* [6]etc are found in *Mukharoga.*

Nishadi Taila[7] mentioned in the context of *Mukharoga* chikista by *Bhavprakasha* so this *Taila* preparation has been taken for the study, to analyse the quality of *Nishadi Taila* subjected for Pharmacognostical study of individual components and physico-chemical analysis of *Nishadi Taila.*

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 .The ingredients & parts used in the preparation of the final product are listed in the Table 1.The ingredients were identified and authenticated in the Pharmacognosy Laboratory, Institute for Post Graduate Teaching & Research in Ayurveda, Gujarat Ayurved University, Jamnagar**.**

Method of Preparation

Drug was prepared in the pharmacy of Gujarat Ayurved University, Jamnagar.

PharmacognosticalEvaluation of *Mahadadimadi Ghrita*

1. Powder microscopy

The powders of respective parts of all the ingredients of *Nishadi Taila* studied separately with and without staining covered with cover slip and observed under the Carl Zeiss Trinocular Microscope. The microphotographs were taken by using Carl Zeiss Trinocular attached with camera.[8]

2. Organoleptic Study

The prepared drug *Nishadi Taila* was evaluated by organoleptic characters like colour, taste, odour etc., and was carefully noted down[9]

Physico-Chemical Analysis of *Nishadi Taila*

Nishadi Taila was analysed by using qualitative and quantitative parameters at Pharmaceutical Chemistry Laboratory, Institute for Post Graduate Teaching & Research in Ayurveda, Gujarat Ayurved University, Jamnagar. All Physico-chemical parameters such as acid value, saponification value, iodine value, refractive index, specific gravity were determined[10]

High Performance Thin Layer Chromatography (HPTLC)

Methanol extract of *Nishadi Taila* was used for High performance thin layer chromatography (HPTLC) study. Extract of *Nishadi Taila* was spotted on pre-coated silica gel GL60254 aluminum plate as 10mm bands by means of a Camag Linomate V sample applicator fitted with a 100µL Hamilton syringe. Toluene: Ethyl acetate: Acetic acid (7:2:1) was used for *Nishadi Taila* as a mobile phase. The development time was 30 minutes. After development, Densitometry scanning was performed with a Camag TLC scanner III in reflectance absorbance mode at 254 nm and 366 nm under control of Win CATS software (V1.2.1. Camag).12, 13 Then the plate was sprayed with Vanillin sulphuric acid followed by heating and then visualized in day light.[11]

RESULTS

Pharmacognostical evaluation

1. Powder microscopy

Powder microscopy of all the ingredients of *Nishadi Taila* was studied and microphotographs were placed at respective figures.[Plate-1 (Fig. 1-15)].

2. Organoleptic parameters

The colour of *Nishadi Taila* is golden yellow, whereas the taste of *Nishadi Taila* is astringent. The odour is characteristic and consistency on touch is liquid and sticky. These are all the organoleptic parameters of *Nishadi Taila* the mentioned in Table 2.

Physico-Chemical Analysis

Physico-chemical parameters of *Nishadi Taila* such as acid value, refractive index, saponification value, iodine value and specific gravity are mentioned in Table 3.

HPTLC profile of *Nishadi Taila*

On performing HPTLC, thechromatogram of *Nishadi Taila* showed 05 spots at corresponding Rf values 0.00, 0.04, 0.31, 0.57, 0.72 in short wave UV 254 nm and 03 spot corresponding Rf value 0.0, 0.85, 0.92 obtained in long wave UV 366 nm. Table 4.

Table 1: Ingredients of *Nishadi Taila*

Sr. No.	Name Of The Drug	Botanical/Latin Name	Part used	Part
1	*Haridra*	*Curcuma Longa* Linn.	Rhizome	2
2	*Nimb Patra*	*Azadirachta Indica* A. Juss Syn. Melia	Leaves	1
3	*Madhuka*	*Glycyrrhiza Glabra* Linn.	Root	1
4	*Neelotpala*	*Nymphea Nouchali*	Flower	1
5	*Tila Taila*	*Sesamum Indicum* Linn.	Oil	16

Table 2: Organoleptic characters of *Nishadi Taila*

Sr. No.	Character	Results
1	Color	Yellowish
2	Odor	Characteristic
3	Taste	*Kashaya-Tikta*
4	Touch	Liquid, sticky

Table: 3 Physico-chemical parameters of *Nishadi Taila*

Sr. No.	Test	Sample Results %W/W
1.	Acid value	6.05
2.	Refractive index	1.4820
3.	Saponification value	183.41
4.	Iodine value	92.68
5.	Specific Gravity	0.035

Table: 4 Rf values of *Nishadi Taila*

Sr. No.	UV light	No. of Spots	Max. Rf values
1.	Short (254 nm)	05	0.00,0.04, 0.31, 0.57, 0.72
2.	Long (366nm)	03	0.0, 0.85, 0.92

Plat 1(Fig. 1-15) Microphotographs of the ingredients of *Nishadi Taila*

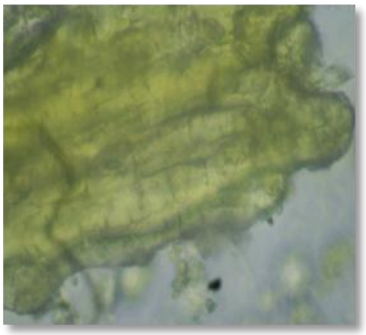
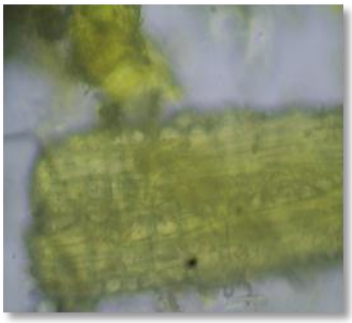
	

Fig 1-Scleroids of *Yastimadhu*	**Fig 2-Crystal fibres of *Yastimadhu***	**Fig 3-Stone cells of *Yastimadhu***

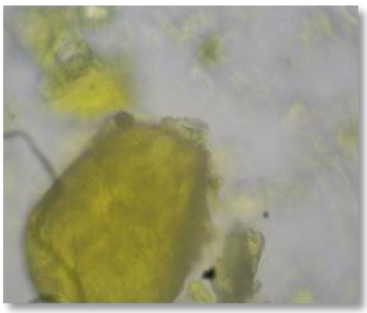
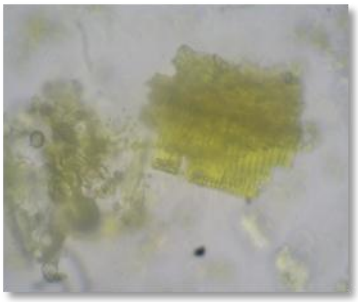
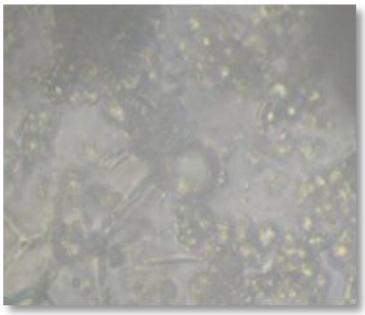

		

Fig 4-Parenchyama cells of *Haridra*	**Fig 5-Scalriform vessel of *Haridra***	**Fig 6-Oil globule of *Tila***

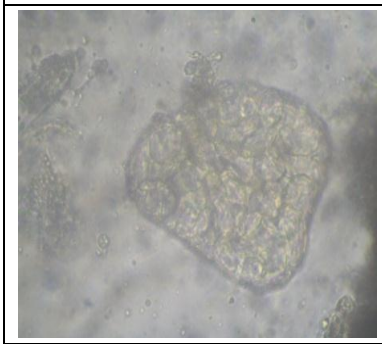
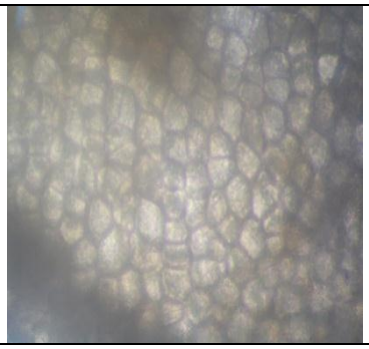

	

Fig 7- Endosperm fragments of *Tila*	**Fig 8-cotyledon surface view of *Tila***	**Fig 9-Lignified branched trichome of *Neelotpala***
		
Fig 10-Pollen grain of *Neelotpala*	**Fig 11-Simple trichome of *Neelotpala***	**Fig 12 – Paracytic Stomata if *Nimba***

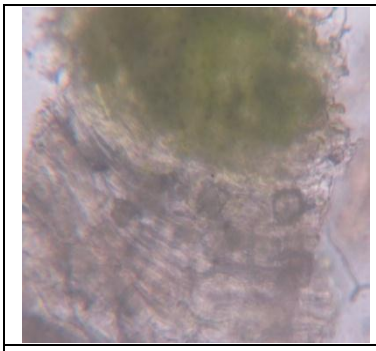
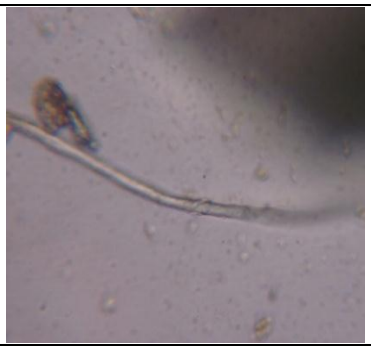
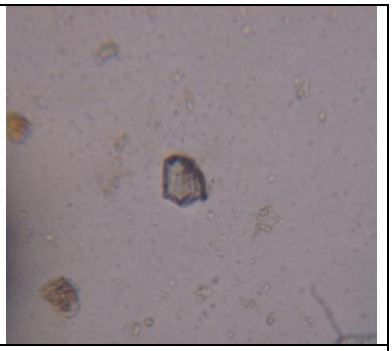
		

Fig 13- Rosette crystals of *Nimba*	**Fig 14- Simple fibre of *Nimba***	**Fig 15- Prismatic crystal of *Nimba***

Plate-2 (Fig. 1-2) Densitogram of *Nishadi Taila* at 254nm and 366nm

Plate-3 (Fig. a,b,c) Three dimensional (3D) Densitogram at (a) 254nm (b) 366nm (c) Specific Comparator Graph.

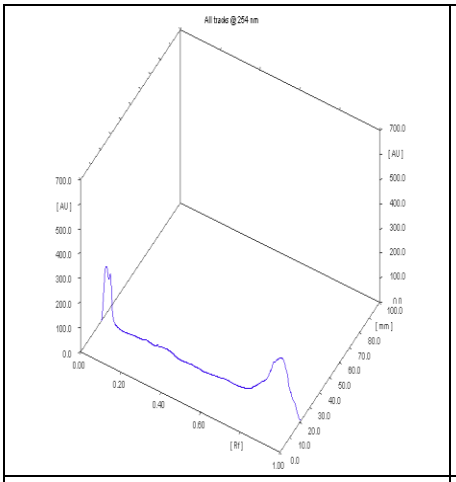
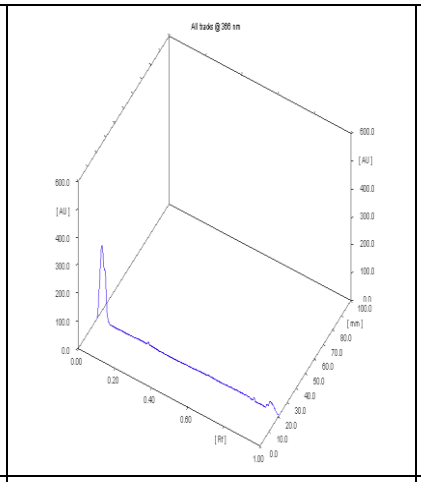
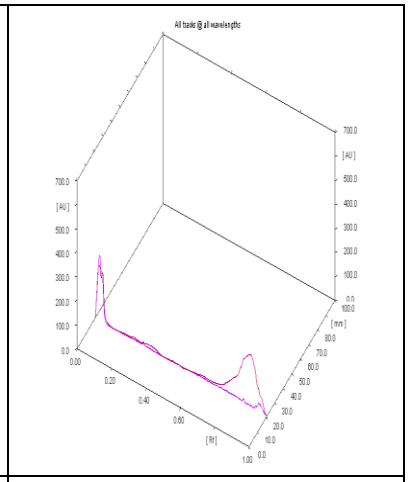
		
(a)254nm	**(b)366nm**	**(c) Comparator**

Plate-4 (Fig. a,b) HPTLC finger prints at (a) 254nm (b)366nm (c) after spray

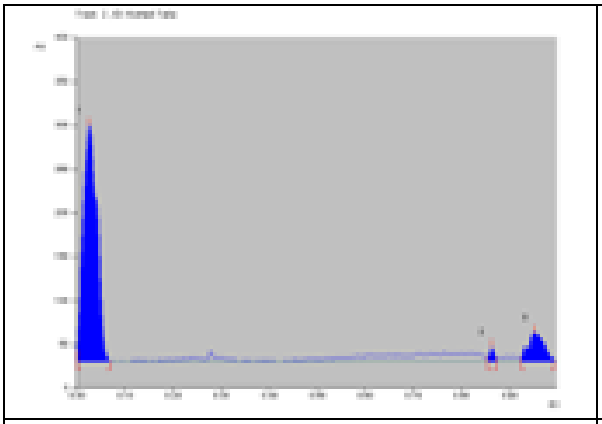
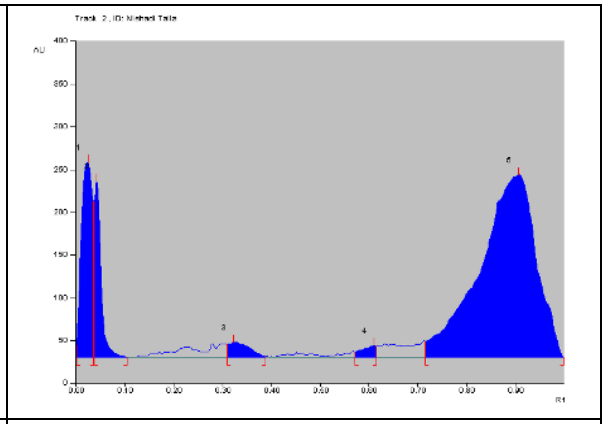
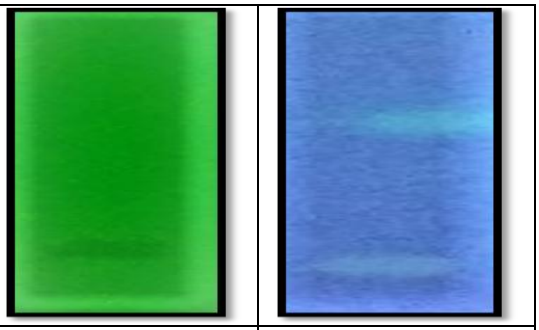
	

Fig. 5-254nm Peak Display	**Fig.3-366nm Peak Display**



(a)254nm	(b)366nm

DISCUSSION

Pharmacognostical evaluation showed that the *Nishadi Taila* contains all the ingredients which were observed in the microscopically 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. All Physico-chemical parameters of *Nishadi Taila* are normal in limit and shows the product is of good quality and better results in the diseases. HPTLC results showed that the 5 spots at 254 nm and 3 spot at 366 nm.

CONCLUSION

Pharmaogonostical and phytochemical evaluation of *Nishadi Taila* illustrated the specific characters of all ingredients which are used in the preparation. The endosperm fragment, oil globule, cotyledon surface, rosette crystal, simple fibre, prismatic crystal, lignified branched trichome, pollen grain, simple trichome, stone cell, parenchyma cell are observed in the ingredients. All the physico-chemical parameters like acid value, saponification value, iodine value, refractive index, specific gravity analysed were within the normal range. All the results showed the quality of the preparation is standard. 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.

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