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PHARMACOGNOSTICAL AND PRELIMINARY PHYSICOCHEMICAL EVALUATION OF VAITARANA BASTI

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ABSTRACT
Vaiatarana basti is a preparation mentioned for management of *Gridhrasi* by *Vangasena* and has *Guda, Amlika, Taila* and *Go-payah* as its ingredients. It is having *Vata* and *Kapha samana* properties and will help in normalizing *doshas* responsible for the disease condition. *Gridhrasi* comes under *vatavyadhi* and *shoola* (pain) is its major symptom. A pharmacognostical study involving the microscopy of liquid *Vaitarana Basti* and a physicochemical analysis of the same were carried out to evaluate the quality of the formulation and to develop its profile. On pharmacognostical study, acicular crystals and fibres of tamarind, loosely arranged mesocarpal cells with brown content of tamarind, oil globules of sesame oil and milk were identified. Analytical study showed 9 spots at 254 nm and 1 spot at 366 nm. The specific gravity of the sample was found as 1.079 and the density as 1.04188 gm/ml. The parameters presented in this paper may serve as standard reference for the quality control analysis of *Vaitarana Basti*.

KEYWORDS: *Vaitarana Basti, Gridhrasi*, Sciatica, *Vatavyadhi, Shoolahara*, Analgesic.

INTRODUCTION
Basti is a very important procedure in Panchakarma, that it is often said as *ardha chikitsa* (half of the whole treatment).[1] There are different types of *basti* explained in Ayurveda classics. *Vaitarana Basti* is a simple type of *basti* explained by Chakradutta, Vrindamadhava and Vangasena.[2,3,4] It has *Amlika* (*Tamarindus Indica Linn*.), *Saindhava* (*Sodii chloridum*), *Guda* (Jaggery), *Tila taila* (*Sesamum indicum Linn*.) and Go – payah (Cows milk) in the quantity of 48 gms, 12 gms, 24 gms, 50 ml and 192 ml respectively for one single dose of administration.

Vaitarana Basti is explained to be given in many conditions like *Soola, Anaha, Amavata, Gridhrasi, Urustambha, Vishama jwara, Klaibya* etc.[2,3,4] This is a rather simple and effective *basti* and can be administered without any complications. Literature review showed that characterization parameters of *Vaitarana Basti* are not reported.

Gridhrasi is a common lifestyle disease nowadays occurring to a majority of the population. It is a type of *vatavyadhi* and pain is one of its cardinal symptom. Also the term '*Gridhrasi'* denotes the peculiar gait of the patient affected by this disease. It is being compared to the gait of '*Gridhra'* or vulture occurring to the patient due to pain.[5] In current scenario, sciatica is correlated with *Gridhrasi*. Sciatica is mainly caused due to irritation of the nerve roots in lumbosacral spinal region. Other reasons include Spinal stenosis, Degenerative disc, Spondylolisthesis etc… *Acharyas* consider *Gridhrasi* to be of *Vatika* and *Vata Kaphaja* types and says it manifests with *Toda* (piercing pain), *Spandana* (twitching), *Graham* (rigidity), *Stambha* (stiffness) and *Vedana* (pain) radiating from *Kati-Pradesha* (lumbosacral region) to *Padanguli* (foot).[6] In modern medicine acute sciatica is mainly managed by over the counter painkillers while chronic cases are managed by physical therapy, painkillers and cognitive behavioural therapy. Surgical management like lumbar laminectomy and discectomy are also done in some cases. Often these are expensive and are not effective enough to avert reoccurrence of condition which warrants for simple and effective methods of management.

Vaitarana Basti has simple combination of medicines and it works by mitigating *vata* and *kapha dosha*. The nature of *Vaitarana basti* shows that it is a type of *nirooha basti* but with some modifications. *Guda* is used instead of *madhu* and *amlika* acts as the *kalka* part. The amount of *taila* is not mentioned and said to be of

'*eeshat tailam*' and leaves it to the discretion of the *Vaidya*. In total this *basti* may be considered as *Laghu, Ruksha, Ushna, Tikshna* and *Vata Kapha Shamaka* in nature. The presence of *Ksheera* will counterbalance the excessive *rookshata* of the *basti* and will help in mitigating *vata* along with the *vata doshahara* activity of *basti karma*. Tamarind present in Vaitarana Basti has got anti-inflammatory activity. It is known to inhibit a number of biological activities like cyclooxygenase-2 (COX-2) expression, inducible nitric oxide synthase (iNOS) and 5-lipoxygenase biosynthesis. Activation of the opioidergic mechanism at both the peripheral and central levels helps in the analgesic activity.[7] The presence of many bio active constituents in Jaggery shows that it has got analgesic and anti-inflammatory activity.[8] However we should consider the combined action of the prepared emulsion as well as the action of *basti* procedure for understanding its mode of action.

MATERIALS AND METHODS

Collection of drug

Contents of test formulation *Vaitarana Basti* were obtained from local market, Jamnagar (Rajbhog Organic Jaggery, Appu pure Sesame oil, Tamarind) while rock salt and milk were obtained from PG Hospital, IPGT&RA, Jamnagar.

Preparation of Drug

The ingredients, parts and the quantity of the drugs used are listed in Table. 1. *Vaitarana Basti* as a final product was prepared in the PG Hospital, Panchakarma section, IPGT&RA, Jamnagar. Detailed description of its preparation are as follows:

First of all melted and liquid form of *guda* which is filtered with a fine cloth is added slowly into a mortar and triturated. Then finely powdered *saindhava* is added slowly and triturated. After it has been mixed well, *tila taila* is added slowly continuing the trituration. When all the contents are mixed well, *amlika* which is clean and made seedless is made into a *kalka* or paste form which is added slowly and triturated. When the contents are mixed well, milk which is not too hot is added slowly and gently triturated. The contents are finally filtered and made lukewarm if required in a hot water bath and are administered.

Pharmacognostical study

This comprised of organoleptic and microscopic study of finished product. *Vaitarana Basti* was freshly prepared and used for the same. The characteristics of the liquid sample were identified in Pharmacognosy laboratory, I.P.G.T. & R.A., Gujarat Ayurved University, Jamnagar, Gujarat.

1. Organoleptic study

These studies helps in authentication of plants used and guarantees reproducibility leading to safety and efficacy of medicines. The details are enumerated in Table No.2.

2. Microscopic study

Vaitarana Basti was prepared and microscopy of the sample was done without stain. Microphotographs of *Vaitarana Basti* was also taken under Carl-Zeiss trinocular microscope.[9]

Physico-Chemical analysis

Vaitarana Basti was analysed using possible standard physico-chemical parameters such as Specific Gravity and Density.

High Performance Thin Layer Chromatography (HPTLC)

HPTLC was done as per standard guidelines. Methanolic extract of drug sample was used for spotting. HPTLC was performed using Toluene: Ethyl acetate: Acetic acid (7:2:1) solvent system and observed under visible light. The colour and Rf values of resolved spots were noted.[10]

RESULTS

Organoleptic characters of *Vaitarana Basti*

Organoleptic characters of *Vaitarana Basti* such as color, odour taste etc. were examined by sensory organs and the results obtained are as shown in Table 2.

Microscopic characters of *Vaitarana Basti*

Contents of *Vaitarana Basti* was observed under the microscope and the ingredients showed their diverse characteristics.

Acicular crystals of tamarind, fibres of tamarind, loosely arranged mesocarpal cells with brown content of tamarind, oil globules of milk and sesame oil were observed under the microscope. (Plate 1, Fig 1- 6)

Physicochemical parameters of *Vaitarana Basti*

Physicochemical parameters of *Vaitarana Basti* are shown in Table 3.

HPTLC Study

Chromatogram showed 9 prominent spots at 254nm with maximum Rf values 1.46, 2.11, 2.43, 2.73, 3.07, 4.24, 11.64, 25.78, 46.53 and 1 spot at 366nm with maximum Rf value 100. (Plate 2 Fig 1-3).

DISCUSSION

Pharmacognostic evaluation of the sample showed the characteristics of the ingredients present inside it. Acicular crystals and fibres of tamarind, loosely arranged mesocarpal cells with brown content of tamarind, oil globules of sesame oil and milk were identified under the microscope. The physico-chemical parameters analysed were found to be within the normal reference range. The physiochemical analysis showed specific gravity as 1.079 and density as 1.04188 gm/ml. HPTLC profile of the methanolic extract of the formulation showed 9 spots at 254 nm and 1 spot at 366 nm, which may indicate the presence of 6 to 8 active principles present in the sample.

There were no common spots in the sample at both 254 and 366 nm.

Table 1: Ingredients of *Vaitarana Basti.*

Content	Latin/English Name	Part Used	Quantity	Quantity in approx. gms/ml
Amlika	*Tamarindus Indica Linn.*	Seed Pulp	1 *pala*	48 gm
Saindhava	*Sodii chloridum*	Whole	1 *karsha*	12 gm
Guda	Jaggery	Whole	½ *pala*	24 gm
Go - payah	Cow milk	Whole	1 *kudava*	192 ml
Tila taila	*Sesamum indicum Linn.*	Oil	*Ishat*	50 ml

Table 2: Organoleptic characters of *Vaitarana Basti.*

Sr. No	Character	Results
1	Color	Yellow
2	Odor	Sour
3	Taste	Salty
4	Touch	Liquid

Table 3: Physicochmical parameters of *Vaitarana Basti.*

No.	Parameters/Sample	*Vaitarana Basti*
1	Specific Gravity	1.079
2	Density	1.04188 gm/ml

Plate. 1 (Fig 1- 6) Microphotographs of *Vaitarana Basti*

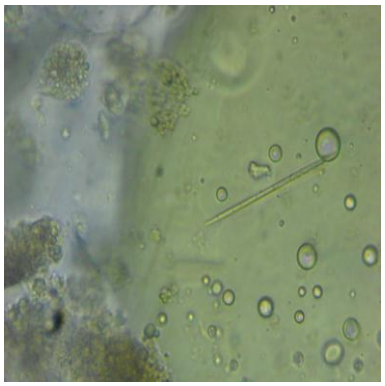

Fig. 1 Acicular crystals of Tamarind

Fig. 2 Fibres of Tamarind

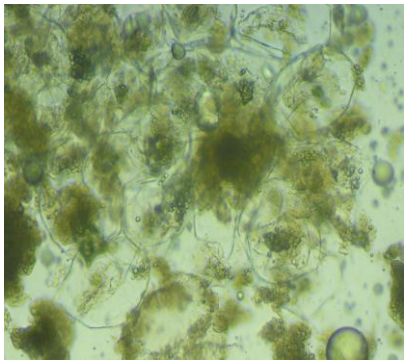

Fig. 3 Loosely arranged mesocarpal cells with brown content of Tamarind

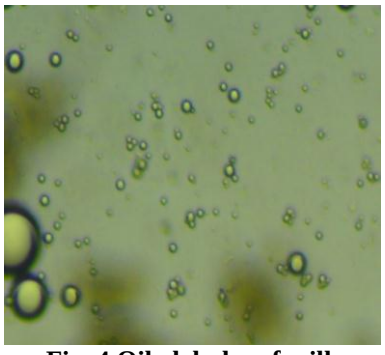

Fig. 4 Oil globules of milk

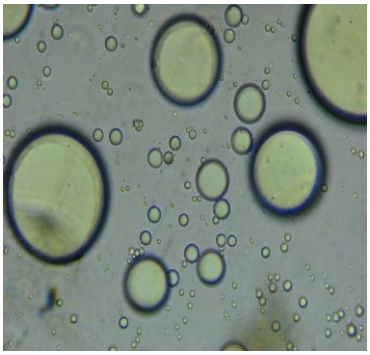

Fig. 5 Oil globules of sesame oil

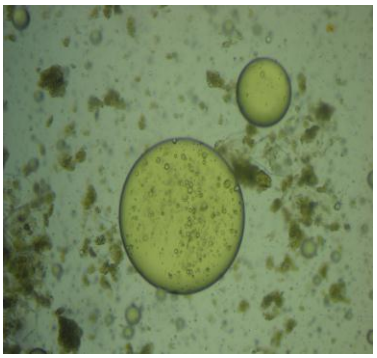

Fig. 6 Oil globules of sesame oil

Plate. 2 (Fig 1- 3)

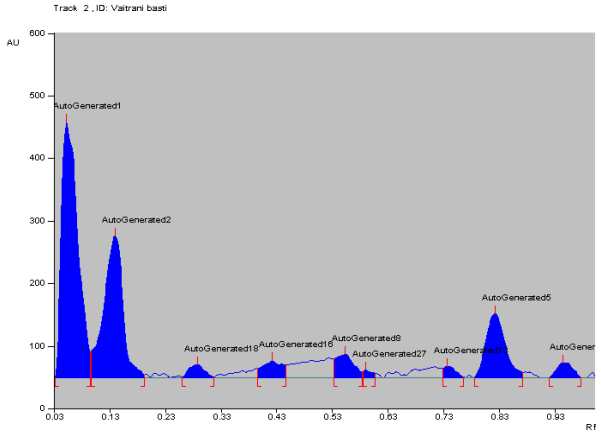

Fig 1. 254nm Peak display

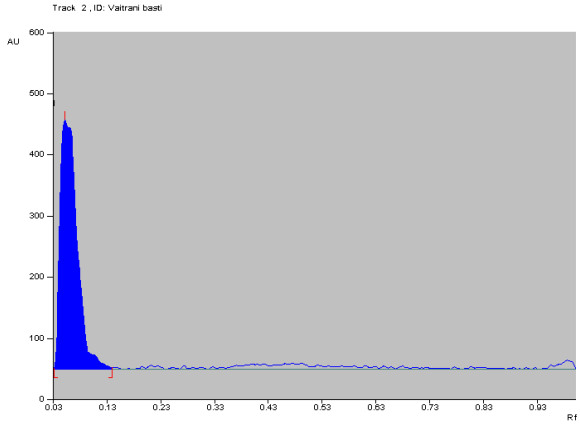

Fig 2. 366nm Peak display

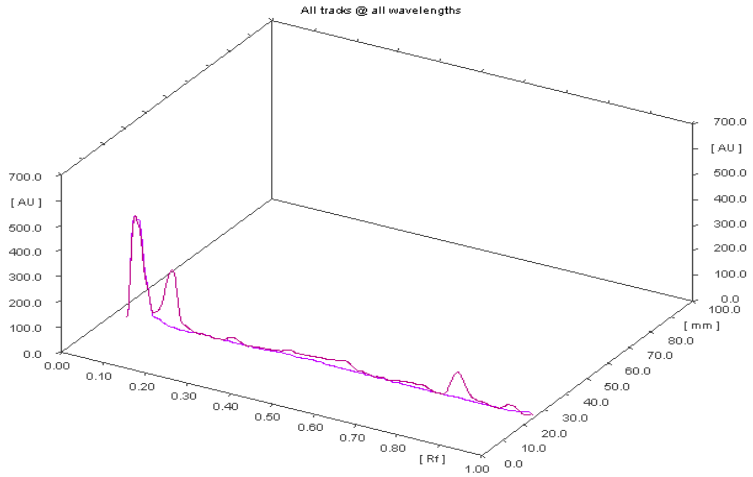

Fig: 3. 254nm & 366nm 3D.

CONCLUSION

Pharmacognostical studies shows that authentic drugs were used for preparation of the formulation and the physiochemical analysis indicates that the formulation meets all the qualitative standards. Current literature review indicates that characterization parameters of *Vaitarana Basti* are not reported anywhere so the parameters discussed here may be used as identification tools for the quality assessment of *Vaitarana Basti*.

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