Original Research article

Ingredients identification, physico-chemical and hptlc evaluation of *Shatavari Narayana taila*

Grishma Ninama*[1], Shilpa B. Donga[2]

*1. MS Scholar, Department of Prasuti Tantra and Streeroga, Institute of post graduate teaching and research in Ayurveda, Jamnagar, Gujarat, India.

2. Professor, Department of Prasuti Tantra and Streeroga, Institute of post graduate teaching and research in Ayurveda, Jamnagar, Gujarat, India.

Address for correspondence:

Grishma Ninama, MS Scholar, Department of Prasuti Tantra and Streeroga, Institute of post graduate teaching and research in Ayurveda, Jamnagar, Gujarat, India.

drgrishmarn07@gmail.com

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ABSTRACT:-

Background: *Shatavari Narayana Taila* is mentioned in *Ayurvedic* classics as a therapeutic formulation to treat *Vandhyatva*. *Shatavari Narayana Taila* contains 48 ingredients and base is *Tila Taila*. All the ingredients have *Vata* pacifying properties. **Materials and Methods:** Powders of all ingredients were evaluated for their organoleptic study and finished product which is *Shatavari Narayana Taila* was evaluated for pharmaceutical analysis. **Results:** Results obtained in pharmaceutical parameters of *Shatavari Narayana Taila* like Acid value 9.766 %, Refractive index 1.4830, Iodine value 60.623, Saponification value 21.6711, Specific gravity 0.9148 etc., are within limit mentioned by Ayurvedic Pharmacopoeia of India. High performance thin layer chromatography profile of *Shatavari Narayana Taila* showed similarities in number of spots. **Conclusion:** From this study, developed data can be espoused for laying down the standards for *Shatavari Narayana Taila.*
KEYWORDS: HPTLC, *Shatavari Narayana Taila*, Pharmaceutics.

INTRODUCTION:

Pharmaceutics is the discipline of pharmacy that deals with the process of turning a new chemical entity (NCE) into a medication to be used safely and effectively by patients. It is also called the science of dosage form design. There are many chemicals with pharmacological properties, but need special measures to help them achieve therapeutically relevant amounts at their sites of action. Pharmaceutics helps relate the formulation of drugs to their delivery and disposition in the body. Pharmaceutics deals with the formulation of a pure drug substance into a dosage form.

Acharya Yogaratnakara has mentioned the effectiveness of *Shatavari Narayana Taila* in the treatment of *Vandhyatva.* Ovulation is under the control of *Vata. Shatavari Narayana Taila* has mainly referred for the *Vata* disorders. *Shatavari Narayana Taila* are having *Vatakaphahara, Rasayana, Vrishya, Balya*, *Ushna, Tikshna* properties which balance vitiated *Vata*, *Kapha* and enhance ovulation.

The Present communication deals with setting a standard pharmaceutical profile of *Shatavari Narayana Taila.*

MATERIALS & METHOD

Collection of Raw Drug

All the raw drugs of *Shatavari Narayana Taila* were collected from Pharmacy, Gujarat Ayurveda University (GAU), Jamnagar, India and all these drugs were identified and authenticated in Pharmacognosy Laboratory, Institute for Postgraduate Teaching and Research in Ayurveda (IPGT & RA), GAU, Jamnagar, India. [Table No.1]

Table No. 1: Ingredients of *Shatavari Narayana Taila* [[i]]

No	Drug	Latin Name	Part used	Proportion
Kwatha Dravya (Yavakuta)				
1	*Shatavari*	*Asparagus racemosus* Willd.	*Moola*	
2	*Shalaparni*	*Desmodium gangeticum* DC	*Moola*	
3	*Prishniparni*	*Ureria picta* Desv.	*Moola*	
4	*Shati*	*Curcuma zedoaria* Rosc.	*Moola*	
5	*Bala*	*Sida cordifolia* Linn.	*Moola*	Each *Dravya* 10 *Pala* = 480 gm approx
6	*Erandamoola*	*Ricinus communis* Linn.	*Moola*	
7	*Brihati*	*Solanum indicum* Linn.	*Moola*	
8	*Kantakari*	*Solanum surattense* Burm.f.	*Moola*	
9	*Karanja*	*Pongamia glabra* Vent.	*Beeja*	
10	*Nagabala*	*Grewia hirsute*	*Moola*	
11	*Sahachara*	*Barleria cristata* Linn.	*Moola*	
Kalka Dravyas				
12	*Punarnava*	*Boerhaavia diffusa* Linn.	*Moola*	
13	*Vacha*	*Acorus calamus* Linn.	*Moola*	

14	Daruharidra	Berberis aristate DC.	Moola	Each Dravya ½ Pala = 24 gm approx.
15	Shatapushpa	Anethum sowa Kurz.	Phala	
16	Raktachandana	Pterocarpus santalinus Linn.f.	Kanda	
17	Aguru	Aquilaria agallocha Roxb.	Kanda	
18	Shallaki	Boswellia serrata Roxb.	Niryasa	
19	Tagara	Valeriana wallichii DC.	Moola	
20	Kushtha	Saussurea lappa C.B.Clarke	Moola	
21	Ela	Elettaria cardamomum Maton	Phala	
22	Jatamamsi	Nardostachys jatamansi DC.	Moola	
23	Shalaparni	Desmodium gangeticum DC.	Moola	
24	Bala	Sida cordifolia Linn.	Moola	
25	Ashwagandha	Withania somnifera Dunal	Moola	
26	Sainddhava	Rock salt	-	
27	Rasna	Pluchea lanceolate Oliver & Hiern.	Moola	
28	Manjishtha	Rubia cordifolia Linn.	Moola	
29	Musta	Cyperus rotundus Linn.	Moola	
30	Choraka	Angelica glauca Edgw	Moola	
31	Priyangu	Callicarpa macrophylla Vahl	Beeja	

Prakshepa Dravya

32	Lavanga	Syzygium aromaticum (Linn.) Merr. & M. Perry	Pushpakalika	Each Dravya 10 gm approx
33	Nakha	Helix aspera	Nakha	
34	Kankola	Piper cubeba Linn. f.	Phala	
35	Maricha	Piper nigrum Linn.	Phala	
36	Javitri	Myristica fragrans Houtt	PhalaTwaka	
37	Twak	Cinnamomum zeylanicum Blume	Twaka	
38	Katuki	Picrorhiza kurroa Royleex Benth.	Moola	
39	Karpura	Borneo camphor	Niryasa	
40	Shilarasa	Liquidamber orientalis Miller	Niryasa	
41	Srivasa	Pinus longifolia Roxb.	Niryasa	
42	Sphrukka	Anisomele smalabarica R. Br.	Patra	
43	Kesara	Crocus sativus Linn.	Kesara	
44	Latakasturi	Hibiscus abelmoscheus Linn.	Moola	

Other

45	Tila	Sesamum indicum Linn.	Taila	1 Prastha = 768 gm approx
46	Shatavari	Asparagus racemosus Willd.	Swarasa	1 Prastha = 768 gm approx
47	Go Dugdha	-	-	2 Prastha = 1536 gm approx
48	Aja Dugdha	-	-	2 Prastha = 1536 gm approx

Preparation of *Shatavari Narayana Taila:*

Shatavari Narayana Taila was prepared in RSBK *(Rasashastra* and *Bhaishajya Kalpana)* department, IPGT & RA, GAU, Jamnagar, India. All identified drugs were washed and dried properly. *Kwatha* was prepared by adding 8 times water in equal amount of all drugs and then it was boiled in low flame to decrease it to 1/4th of total water.[ii] *Kalka* was prepared by adding adequate amount of water in above mentioned drugs. For preparation of *Shatavari Narayana Taila* 1: 4: 16 of *Kalka, Taila* and *Kwatha* respectively were taken as per classical reference.[iii] After preparation of *Kalka* and *Kwatha, Taila* was measured and poured into a vessel with thick base on medium flare. The *Kwatha, Kalka* and *Mansa Rasa* were also poured into the vessel, and the mixture was boiled in medium flame with continuous stirring and monitoring of *Paka*. The boiling was stopped and the *Taila* was sieved by using a washed and dried white filter cloth when *Madhyama Paka*[iv] was attained.

Organoleptic study of prepared drug

Organoleptic studies of prepared *Shatavari Narayana Taila* are endangered for various sensory characteristics like odour, colour etc. were carefully distinguished down. [Table No. 2]

Physico-chemical analysis

Physico-chemical analysis of *Shatavari Narayana Taila* was done by using various standard physico-chemical parameters such as Acid value[v], Refractive Index value[vi], Saponification value[vii], Iodine value[viii], and Specific gravity[ix] at Pharmaceutical chemistry laboratory, IPGT and RA, Jamnagar, India. Physico-chemical analyses were carried out by following standard procedure mentioned in API (Ayurvedic Pharmacopeia of India). [Table No. 3]

HPTLC (High Performance Thin Layer Chromatography) evaluation [x]

Sample was prepared by diluting 1 ml *Shatavari Narayana Taila* with 2 ml Hexane and it was used for spotting. Prepared sample of *Shatavari Narayana Taila* was spotted on pre-coated silica gel aluminium plate as 6 mm bands by means of a CAMAG Linomat V sample applicator fitted with a 100 μL Hamilton syringe. Then alcoholic KOH was applied on same spotted area and plate was heated at 110 oc on TLC plate heater for 10 minutes. Hexane: Diethyl Ether (7:3) was used for *Shatavari Narayana 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 (V1.3.4 CAMAG). Then the plate was dipped in 10% H_2So_4 followed by heating and then visualized in day light. The Rf values and colour of resolved spots were noted. [Table No. 4]

RESULTS

Organoleptic Characters:

Organoleptic characters of prepared *Shatavari Narayana Taila* carefully observed and distinguished as below.

Table no 2: Organoleptic characters of *Shatavari Narayana Taila*

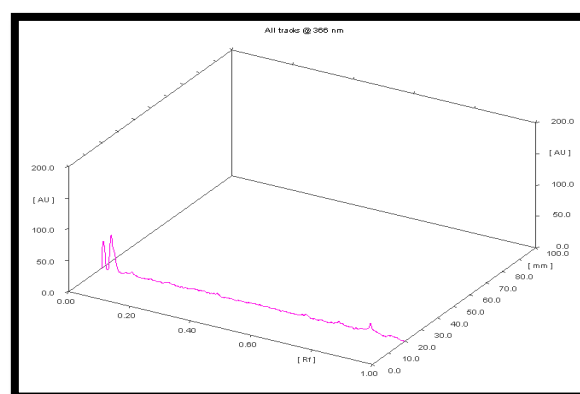| Rupa (Colour)	Blackish Brown
Gandha(Odour)	Characteristic
Appearance	Dark
Rasa (Taste)	Astringent
Clarity	Thick
Sparsha (Touch)	Sticky

Physico-chemical results:

Physico-chemical findings of prepared *Shatavari Narayana Taila* are given in below table.

**Table No. 3. Physico-chemical findings of prepared *Shatavari Narayana Taila***

SR.NO	PARAMETERS	Sample Result
1	Acid value	9.766
2	Refractive index	1.4830
3	Saponification value	21.6711
4	Iodine value	60.623
5	Specific Gravity	0.9148

Table No. 4: Results of HPTLC of *Shatavari Narayana Taila*

No. of spot Visualize under short UV (254 nm)	No. of spot Visualize under long UV (366 nm)
10 spots	**8 spots**
0.03,0.10,0.37,0.45,0.49,0.53,0.57,0.68,0.81,0.90	**0.03,0.20,0.34,0.41,0.49,0.57,0.90,0.95**

Plate 1: HPTLC evaluation of *Shatavari Narayana Taila:*
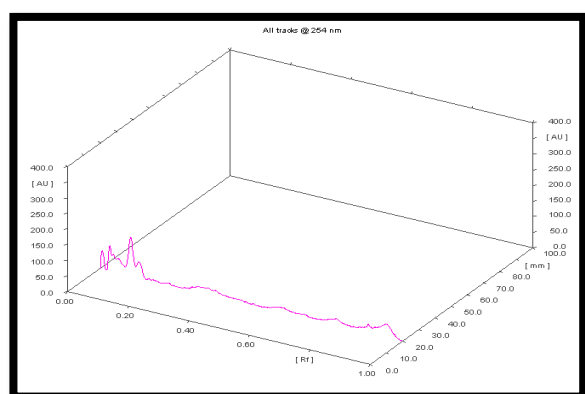
3D Graph: 254nm of *Shatavari Narayana Taila*   **3D Graph: 366nm *Shatavari Narayana Taila***
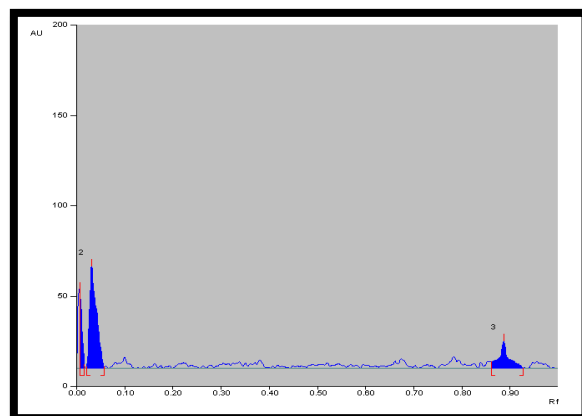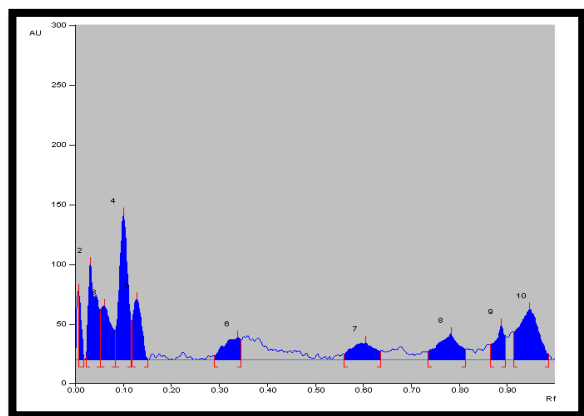
Chromatographic Results (Peak display) of *Shatavari Narayana Taila* **short ultra violet (254 nm)**

Chromatographic Results (Peak display) of *Shatavari Narayana Taila* **short ultra violet (366nm)**

DISCUSSION

The Pharmacognostical and pharmaceutical study exposes authentication of individual raw drugs of *Shatavari Narayana Taila* and it is cross verified in *Ayurvedic* Pharmacopeia of India (API). In physicochemical analysis, Loss on drying, Refractive Index, Saponification value, specific gravity, pH, Acid value, Iodine value were assessed. In this study, the quality groundwork for the standardization is covered. Additional analysis and investigations are required for the identification of the test drug to substantiate the clinical efficacy.

In this study, *Shatavari Narayana Taila* is well separated compact symmetrical bands in favour of chromophore sensitive component (Sterol, phytosterol, stigmasterol etc.) indirectly due to prechromatographic derivatization of oil sample directly. By visualization under short UV there were 10 spots and while under long UV exposure 8 spots.

CONCLUSION

It is concluded that the formulation meets maximum qualitative standards based on physico-chemical parameters. The separation pattern of VG is documented with help of prechromatographic derivative method in context of R_f & densitogram. The study results may be used as the standard reference in further research undertakings of its kind.

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