INGREDIENTS IDENTIFICATION, PHYSICO-CHEMICAL AND HPTLC EVALUATION OF *SHATAVARI NARAYANA TAILA*

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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 42 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 0.9148etc., 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 AND METHOD

Collection of Raw Drug

All the raw drugs of *Shatavari Narayana Taila* had been purchased from the local market of Jamnagar. *Godugdha* had been purchased from the local vendor of Jamnagar. Fresh *Shatavari Moola* had been purchasedfrom the local vendor of Jamnagar. [Table No.1]

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

Sr.No	Drug	Latin Name	Family	Part used
KVATHA DRAVYA				
1	*Shatavari*	*Asparagus racemosus* Willd.	Liliaceae	*Moola*
2	*Shalaparni*	*Desmodium gangeticum* DC.	Fabaceae	*Moola*
3	*Prushniparni*	*Ureria picta* Desv.	Fabaceae	*Moola*
4	*Shati*	*Hedychium spicatum* Ham. ex Smith	Zingiberaceae	*Moola*
5	*Atibala*	*Abutilon indicum* (Linn.) Sweet	Malvaceae	*Moola*
6	*Eranda*	*Ricinus communis* Linn.	Euphorbiaceae	*Moola*
7	*Bruhati*	*Solanum indicum* Linn.	Solanaceae	*Moola*
8	*Kantakari*	*Solanum surattense* Burm. f.	Solanaceae	*Moola*
9	*Karanja*	*Pongamia glabra* Vent.	Fabaceae	*Beeja*
10	*Atibala*	*Abutilon indicum* (Linn.) Sweet	Malvaceae	*Moola*
11	*Sahachara*	*Barleria cristata* Linn.	Acanthaceae	*Moola*
KALKA DRAVYA				
12	*Punarnava*	*Boerhaavia diffusa* Linn.	Ficoidaceae	*Moola*
13	*Vacha*	*Acorus calamus* Linn.	Araceae	*Moola*
14	*Daruharidra*	*Berberis aristate* DC.	Berberidaceae	*Moola*
15	*Shatapushpa*	*Anethum sowa* Kurz.	Umbelliferae	*Phala*
16	*Raktachandana*	*Pterocarpus santalinus* Linn.f.	Fabaceae	*Kanda*
17	*Aguru*	*Aquilaria agallocha* Roxb.	Thymelaeaceae	*Kanda*
18	*Shallaki*	*Boswellia serrata* Roxb.	Burseraceae	*Niryasa*
19	*Tagara*	*Valeriana wallichii* DC.	Valerianaceae	*Moola*
20	*Kushtha*	*Saussurea lappa* C.B. Clarke	Asteraceae	*Moola*

21	*Ela*	*Elettaria cardamomum* Maton	Zingiberaceae	*Phala*
22	*Jatamansi*	*Nardostachys jatamansi* DC.	Valerianaceae	*Moola*
23	*Shalaparni*	*Desmodium gangeticum* DC.	Fabaceae	*Moola*
24	*Atibala*	*Abutilon indicum* (Linn.) Sweet	Malvaceae	*Moola*
25	*Ashvagandha*	*Withania somnifera* Dunal	Solanaceae	*Moola*
26	*Saindhava*	*Rock salt*	-	-
27	*Manjishtha*	*Rubia cordifolia* Linn.	Rubiaceae	*Moola*
28	*Rasna*	*Pluchea lanceolate* Oliver & Hiern.	Compositae	*Moola*
29	*Musta*	*Cyperus rotundus* Linn.	Cyperaceae	*Moola*
30	*Priyangu*	*Callicarpa macrophylla* Vahl.	Verbanaceae	*Beeja*
PRAKSHEPA				
31	*Lavanga*	*Syzygium aromaticum* (Linn.) Merr. & M. Perry	Myrtaceae	*PushpaKalika*
32	*Kankola*	*Piper cubeba* Linn. f.	Piperaceae	*Phala*
33	*Maricha*	*Piper nigrum* Linn.	Piperaceae	*Phala*
34	*Javitri*	*Myristica fragrans* Houtt	Myristicaceae	*Phala Twaka*
35	*Twak*	*Cinnamomum zeylanicum* Blume	Lauraceae	*Twaka*
36	*Katuki*	*Picrorhiza kurroa* Royleex Benth.	Scrophulariaceae	*Moola*
37	*Karpura*	*Bornio camphor* L.	Camphora	*Niryasa*
38	*Kesara*	*Crocus sativus* Linn.	Iridaceae	*Kesara*
39	*Latakasturi*	*Hibiscus abelmoscheus* Linn.	Malvaceae	*Moola*
DRAVA DRAVYA				
40	*Tila*	*Sesamum indicum* Linn.	Pedaliaceae	*Taila*
41	*Shatavari*	*Asparagus racemosus* Willd.	Liliaceae	*Svarasa*
42	*Go Dugdha*	-	-	-

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.[2] *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.[3] 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[4]* was attained.

Organoleptic study of prepared drug

Organoleptic studies of prepared *Shatavari Narayana Taila* are endangered for various sensory characteristicslike 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[5], Refractive Index value[6], Saponification value[7], Iodine value[8], and Specific gravity[9]([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[10]

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 CAMAGTLC 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	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

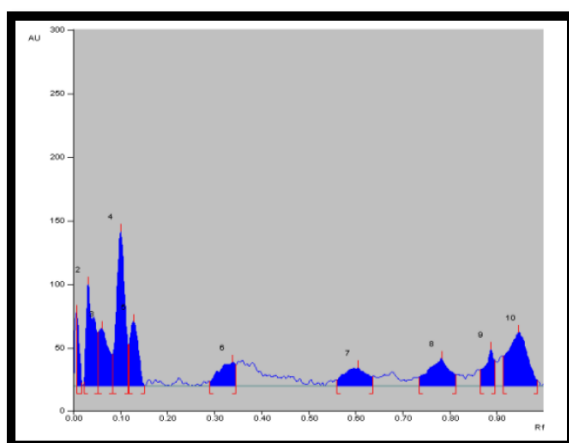**Table No. 4: Results of HPTLC of *Shatavari Narayana Taila*.**

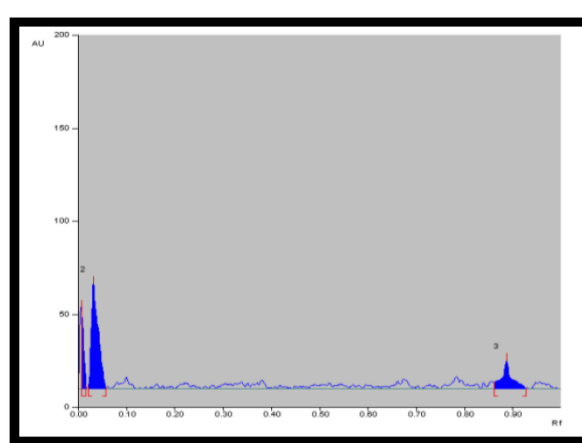| No. of spot Visualize under short UV (254 nm)	No. of spot Visualize under long UV (366 nm)
10 spots	8 spots
0.03,0.10,0.37,0.45,0.49,0.53,0.57,0.68,0.81,0.90	0.03,0.20,0.34,0.41,0.49,0.57,0.90,0.95
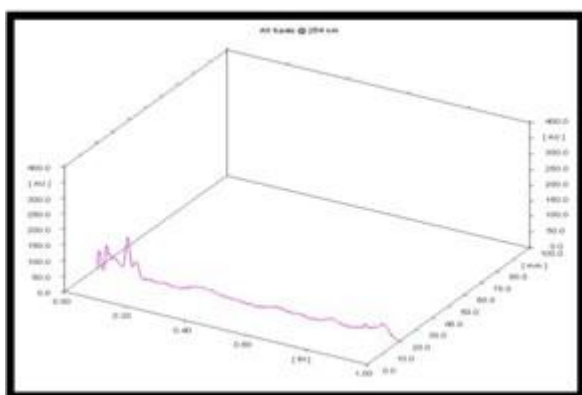
3D Graph: 254 nm of *Shatavari Narayana Taila*
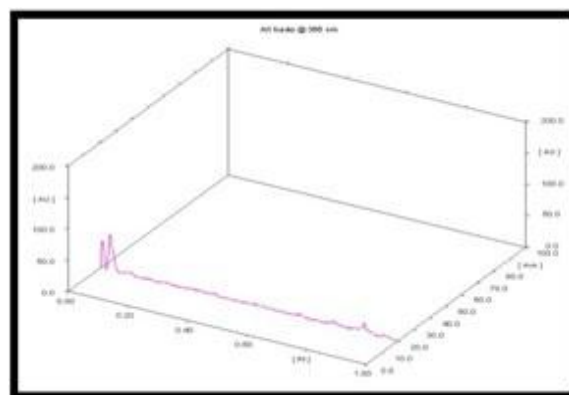
3D Graph: 366 nm *Shatavari Narayana Taila*

Chromatographic Results (Peak display) of*Shatavari Narayana Taila* short ultra violet (254 nm)

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

Plate 1: HPTLC evaluation of *Shatavari Narayana Taila*.

DISCUSSION

The Pharmacognostical and pharmaceutical study exposes authentication of individual raw drugs of *ShatavariNarayana 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 favor 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 spotsand 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 methodin context of Rf & densitogram. The study results may be used as the standard reference in further research undertakings of its kind.

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