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PHARMACOGNOSTICAL AND PHARMACEUTICAL ANALYSIS OF *ASHWAGANDHADI TAILA* - AN AYURVEDIC HERBAL FORMULATION FOR THE MANAGEMENT OF *KSHINASHUKRA* (OLIGOSPERMIA)

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ABSTRACT

Background: *Ashwagandhadi Taila* is mentioned by Acharya Chakradutta in *Vata Vyadhi Chikitsa* and also is indicated for *Kshinashukra*. So for initialization of standardization and assurance of the quality of herbal compounds pharmacognostical and pharmaceutical analysis should be done. **Methods:** *Ashwagandhadi Taila* were subjected to microscopic evaluation for pharmacognostical and physicochemical analysis like Loss on drying, Specific gravity, Saponification, Refractive index, Acid value. **Results:** Pharmacognostical study showed the presence of certain identifying characters of all the ingredients of *Ashwagandhadi Taila*. specific gravity 0.9174 at room temperature, acid value 4.84 w/w, saponification 185.9 w/w, refractive index 1.4609. **Conclusions:** Pharmacognostical and physico-chemical observations revealed the specific characteristics of all active constituents of *Ashwagandhadi Taila* confirmed the purity and genuinity of the drug.

KEYWORDS *Ashwagandhadi Taila, Kshinashukra,* Pharmacognosy,

INTRODUCTION

Kshinashukra is a kind of *Shukradushti* that eventually leads to infertility, which in biomedicine is known as oligospermia. According to Ayurveda, oligospermia might be associated with *Kshinashukra*. Though none of the traditional Ayurvedic texts stated the amount of sperm or motility of sperm, they did describe the quality of semen in the form of *Shudha Shukra Lakshana.*[1] Oligospermia, or decreased sperm concentration, is a prevalent cause of male infertility. Semen with low sperm concentrations can exhibit major morphological and motility problems. Oligospermia is characterized as the sperm count.[2]

In classics, have said *Ashwagandhadi Taila*[3] is *Vrishya* and has been reported to have Aphrodisac, anti-bacterial, carminative properties.

In the case of internal administration of herbal drug, it should be safe, effective and free from adulteration, with appropriate quantity and ingredients. It is difficult to identify the herbal drug in dry or powdered form. So, it is a need of time to set proper parameters for standardization of herbal drugs. Pharmacognostical studies reveal plant identification and set parameters for standardization which can be done in the case of herbal traditional medicine. Generally, the physiochemical analytical study of drugs helps to interpret the pharmacokinetics and pharmacodynamics involved. With the help of physiochemical analytical studies, it is possible to standardize the drug and differentiate the adulterants. It is necessity of time in the field of Ayurveda to go for quality control of the raw drugs as well as final products using modern parameters which provides credibility to Ayurvedic medicines and also help in the globalization of Ayurveda. Hence to evaluate the Authenticity of *Ashwagandhadi Taila* through various pharmacognostical procedures, and to develop the pharmacognostical and phytochemical profile of *Ashwagandhadi Taila* the present study was carried out.

MATERIALS AND METHOD

Collection, identification and authentication of raw drugs. The raw materials were procured from the pharmacy of ITRA Jamnagar, authentic source and the raw drugs were identified and authenticated in the pharmacognosy laboratory of Institute of teaching and research in Ayurveda, Ministry of Ayush, Gov. Of India, Jamnagar. The ingredients and part used of *Ashwagandhadi Taila* are given in Table 1.

Table No. 1: Ingredients of *Ashwagandhadi Taila.*

Sr. No.	Drug	Botanical Name	Family	Part Used	Proportion
1	*Ashwagandha*	*Withania Somnifera Dunal*	*Solanaceae*	Root	4 parts
2	*Utpala*	*Nelumbo nucifera FAM*	*Nelumbonaceae*	Seed stalk, stem	1 part
3	*Malati*	*Jasminum Grandiflorum Linn*	*Oleaceae*	Flower	1 part
4	*Hebair*	*Pabonia Odorata*	*Malvaceae*	Root	1 part
5	*Madhuka*	*Madhuca Longifolia Roxb*	*Sapotaceae*	Flower	1 part
6	*Sariva*	*Hemidesmus Indicus R.BR.*	*Asclepiadeaceae*	Stem	1 part
7	*Padmakeshar*	*Prunus Puddum Roxb*	*Rosaceae*	Seed	1 part
8	*Meda*	*Polygonatum Airrhifolium Royal*	*Liliacease*	Rhizome	1 part
9	*Punarnava*	*Boerhavia Diffusa Linn*	*Nyctaginaceae*	Root	1 part
10	*Draksha*	*Vitis Vinifera* Linn	*Vitaceae*	Fruit	1 part
11	*Manjistha*	*Rubia Cordifolia* Linn	*Rubiaceae*	Stem	1 part
12	*Brahati*	*Solanum Indicum Linn*	*Solanaceae*	Root	1 part
13	*Kantakari*	*Solanum Surattense Burm. F.*	*Solanaceae*	Root/ *Panchanga*	1 part
14	*Ela*	*Elettaria Cardemomum Maton*	*Zingibaraceae*	Fruit	1 part
15	*Haritaki*	*Terminalia chebula Linn.*	*Combretaceae*	Fruit	1 part
16	*Bibhitaki*	*Terminalia belirica Roxb.*	*Combretaceae*	Fruit	1 part
17	*Amalaki*	*Embilica officinalis Gaertn*	*Euphorbiaceae*	Fruit	1 part
18	*Musta*	*Cyperus rotundus Linn.*	*Cyperaceae*	Tuber	1 part
19	*Chandana*	*Santalum Album Linn*	*Santalaceae*	Stem	1 part
20	*Padmaka*	*Prunus Cerasoides D.Don*	*Rosaceae*	Fruit	1 part
21	*Tila Taila*	*Sesamum indicum*	*Pedaliaceae*	-	8 part
22	*Godugdha*	-	-	-	4 part

METHOD OF PREPARATION

ASHWAGANDHADI TAILAAM

Firstly, the decoction of *Ashwagandha* will be prepared by adding 16 times of water which will be reduced to one-fourth. Decoction along with four times milk will be added to *Tila Tailaa* and the paste (*Kalka*) of other drugs in the formulation in equal amount will be added & heated on *Mandagni* until *Tailaapaka Siddhi Lakshanas* occur. Afterwards, it will be filtered and the prepared drug will be stored under aseptic and good hygienic conditions.

PHARMACOGNOSTICAL STUDY

The pharmacognostical study was divided in to organoleptic study and microscopic study of the finished product.

ORGANOLEPTIC STUDY

The genuinity of the polyherbal formulation can be fined with organoleptic characters of the given sample. Organoleptic parameters comprises of color, odor, taste and touch of *Ashwagandhadi Taila* which was scientifically studied as per the standard references.

MICROSCOPIC STUDY

Ashwagandhadi Tailaa ingridents was taken in powder form and dissolved with water and microscopy of the sample was done without stain and after staining with phloroglucinol and HCl. Microphotographs of all ingridents of *Ashwagandhadi Tailaa* were also taken under taken under Corl-zeisstrinocular microscope.[4]

PHYSICO-CHEMICAL ANALYSIS

With the help of various standard physico-chemical parameters, *Ashwagandhadi Tailaa* was analyzed. The common parameters mentioned for *Tailaa* (Sneha) Kalpana in Ayurvedic Pharmacopeia of India, and CCRAS, guidelines are loss on drying, specific gravity, acid value, saponification and refractive index.

OBSERVATION AND RESULTS

The initial purpose of the study was to confirm the authenticity the drugs used in preparation of *Ashwagandhadi Tailaa*. For this, all ingredients was subjected to organoleptic and microscopic evaluations to confirm the genuineness of all the raw drugs. Later after the preparation of formulation, pharmacognostical evaluation was carried out. Organoleptic evaluation organoleptic features like color; odor and touch of *Ashwagandhadi Taila* were recorded and are placed in Table 2 and 3.

Table 2: Organoleptic Characters Of *Ashwagandhadi Taila.*

Parameter	Results
Color	Brownish yellow
Odor	Aromatic
Touch	Smooth

Microscopic evaluation was conducted by dissolving the ingredients of *Ashwagandhadi Taila* in the distilled water and studied under microscope for the presence of characteristics of ingredient drugs.

Table 3: Microscopic Evaluation.

Fig.No. 1.1- Pitted vessel of *Ashwagandha*	Fig.No. 1.11- Eicarp cell of *Bruhati*
Fig.No. 1.2- Fiber of *Utpal*	Fig.No. 1.12- Stone cell in group of *Kantakari*
Fig.No. 1.3- Sprial vessel of *Malati*	Fig.No. 1.13- Crystals of *Ela*
Fig.No. 1.4- Pitted vessel of *Hebar*	Fig.No. 1.14- Tannin Content *Haritaki*
Fig.No. 1.5- Strach grain of *madhuka*	Fig.No. 1.15- Trichome of *Bibhitaki*
Fig.No. 1.6- Stone cell in group of *Manjishta*	Fig.No. 1.16- Silica deposition of *Amalaki*
Fig.No. 1.7- Stone cell of *Padmakeshar*	Fig.No. 1.17- Cork cell *Musta*
Fig.No. 1.8- Cork cells in surfase view of *Punarna*	Fig.No. 1.18- Lignified Fiber of *Chandan*
Fig.No. 1.9- Lignified Parenchymal cells of *Draksha*	Fig.No. 1.19- Crystal Fiber of *Padmak*
Fig.No. 1.10- Border pitted vessels of *Manjista*	


Fig.No. 1.1


Fig.No. 1.2

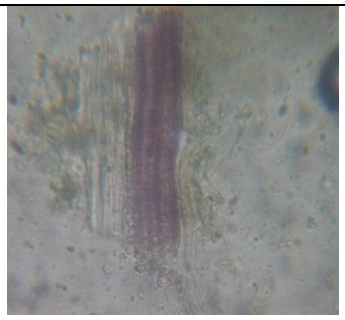
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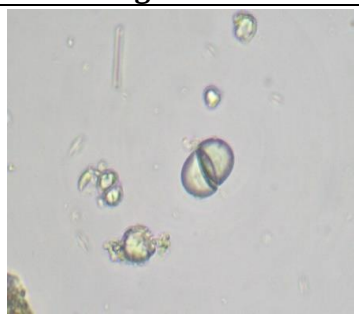
Fig.No. 1.4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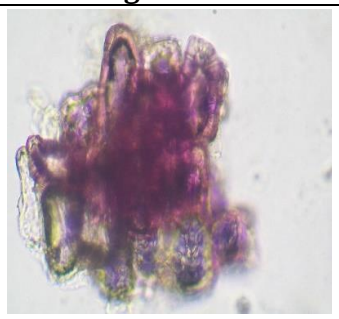
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Fig.No. 1.7


Fig.No. 1.8

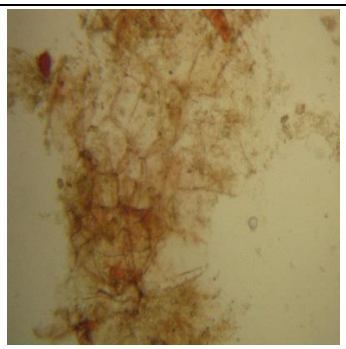
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Fig.No. 1.10

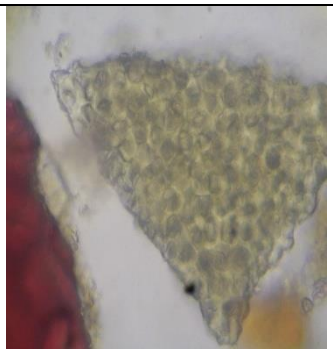
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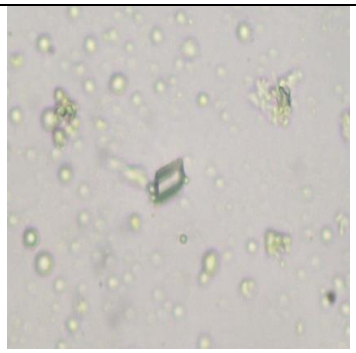
Fig.No. 1.12



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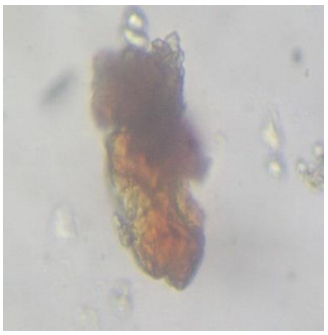

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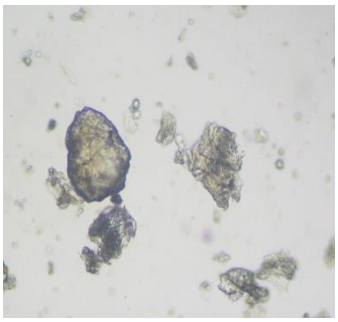
Fig.No. 1.15



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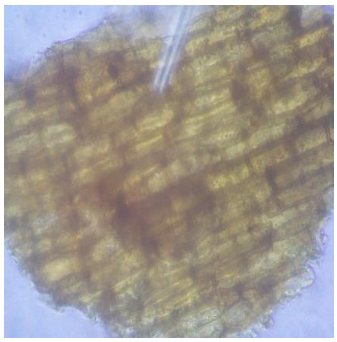

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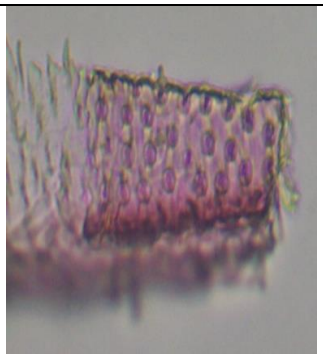

Fig.No. 1.18

Fig.No. 1.19

Table 4: Physico-Chemical Parameters Of *Ashwagandhadi Tailaa.*

Parameter	Value (%)
Loss on drying(w/w)	0.9174
Acid value (w/w)	4.84
Saponification value	185.9
Refractive index	1.4609
Specific gravity	0.9174

DISCUSSION

Study on *Ashwagandhadi Tailaa* was a step towards pharmacognostical and pharmaceutical standardization of the drug. The pharmacognostical study revealed the presence of the diagnostic characters of *Ashwagandhadi Tailaa* like are. The diagnostic characters are Pitted vessel of *Ashwagandha,* Fiber of *Utpal,* Sprial vessel of *Malati,* Pitted vessel of *Hebar,* Strach grain of *madhuka,* Stone cell in group of *Manjishta,* Stone cell of *Padmakeshar,* Cork cells in surfase view of *Punarnava,* Lignified Parenchymal cells of *Draksha,* Border pitted vessels of *Manjista,* Eicarp cell of *Bruhati,* Stone cell in group of *Kantakari,* Crystals of *Ela,* Tannin Content *Haritaki,* Trichome of *Bibhitaki,* Silica deposition of *Amalaki,* Cork cell *Musta,* Lignified Fiber of *Chandan,* Crystal Fiber of *Padmak.*

This confirms the presence of all ingredients of raw drugs in the final product and there is no major change in the microscopic structure of raw drug during the pharmaceutical process of

preparation of final product, this showed the genuinity of the final product. All the physio-chemical parameters, Specific gravity- 0.9174, Acid value-4.84, Saponification – 185.9, Loss on drying-0.9174 and Refractive index-1.46 were analyzed and found to be in normal referential range.

CONCLUSION

The pharmacognostical and physico-chemical analysis of *Ashwagandhadi Tailaa* confirmed the purity and genuinity of the drug. As no standard fingerprint is available for this formulation, an attempt has been made to evolve pharmacognostical and physico-chemical profiles of *Ashwagandhadi Tailaa*. Information acquired from this study may be beneficial for further research work and can be used as a reference standard for quality control researches.

FUNDING No funding sources.

CONFLICT OF INTEREST None.

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