

Pharmacognostical and Pharmaceutical Analysis of Shirisha Ashwagandhadi Avaleha Yoga – A Compound Ayurvedic Formulation

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Abstract

Aim and Objective: *Shirisha Ashawagandhadi Avaleha Yoga* is a *Anubhuta Yoga* given in the treatment of *Vataja Pratishyaya*. Symptoms of the Allergic Rhinitis can be compared with classical symptoms of *Vataja Pratishyaya*. In present study attempt has been made to develop pharmacognostical and pharmaceutical standards as per Ayurvedic Pharmacopoeia of India (API) for *Shirisha Ashawagandhadi Avaleha Yoga*.

Methodology: Pharmacognostical and Pharmaceutical Parameters, High-Performance Thin Layer Chromatography has been performed as per Standard method.

Result: The diagnostic character of microscopic analysis of *Shirisha Ashwagandhadi Avaleha* showed the trichome of *Vibhitak*, deposition of Abharaka (silica) Anullar vessels of *Pushkarmula*, Fibers of *Twaka*, Prismatic crystal of *Shirisha*, Stillate trichom of *Kantakari*, Microcrystal of *Ela*, Stone cells of *Yesthimadhu*, Pitted stone cell of *Vibhitaki*, Oil lobule of *Ashwagandha*, Simple Starch grains of *Tugakshiri*, Black debris of *Pippali*, Simple and compound Starch grains of *Kushtha*, Simple and compound Starch grain of *Ashwagandha*, Epicarp of *Ela*, Parenchyma cells and Starch grains of *Haridra*, Tannin cotent of *Shirisha*, Multicellular trichome of *Vasa*, Pitted vessels of *Yesthimadhu*, Stone cells of *Shirisha*, Scalaryiform vessels of *Haridra*, Pitted vessels of *Vasa*, Starch grains of *Kantakari*.

Conclusion: Standard value from this study can be used for further researches and evaluation of *Shirisha Ashwagandhadi Avaleha Yoga* helps in Quality control tool for its manufacturing or processing. Analysis through Pharmacognostical and Pharmaceutical shows suitability of drug for oral intake.

Keywords: Shirisha Ashwagandhadi Avaleha Yoga, Pharmacognostical, Pharmaceutical, Vataja Abhishyanda

Introduction

In this era people are more aware of diseases and expecting medical science to satisfying their needs on curative plus preventing aspect. Thus, Ayurvedic medicines are on great demand. As traditional

science have vast variety and individualist concept there is a more need to research on *Ayurvedic* drugs to standardize so that all over the world medicine can be used with maximum safety.

Allergic Rhinitis perhaps is the foremost suffering because after birth nose is the first route of contact of internal body environmental with that of external; and is exposed to lot of microorganisms, allergens and environmental pollutants present in the atmosphere. It is the most common diseases which affects people without any distinction of age, race, religion, nationality etc. Among all types of *Pratishyaya* clinical features of *Vataja Pratishyaya* (Allergic Rhinitis) described by ancient texts of Ayurveda are *Aandhdha Pihita Nasa*, *Tanu Srava*, *Gal Talu Austha Shosh*, *Nistoda Sankhyo* and *Svaroupghata*. Here *Shirisha Ashwagandhadi Avaleha Yoga* a compound Ayurvedic formulation has been studied with pharmacognostical and pharmaceutical parameters. *Shirisha Ashwagandhadi Avaleha* is a *Anubhuta Yoga*. *Shirisha Ashwagandhadi Avaleha* has *Rasayana* and *Rogahara* property. It will give an immune modulator effect which will be effective in the management of *Vataja Pratishyaya* (Allergic Rhinitis). An attempt has been made to study *Shirisha Ashwagandhadi Avaleha Yoga* by pharmacognostical, pharmaceutical, physio-chemical parameters and develop HPTLC fingerprints of the compound formulation.

Materials and Method

Collection of Raw Drug: Raw herbal drugs were collected from Pharmacy, Gujarat Ayurved University, Jamnagar and authenticated in pharmacognosy laboratory, IPGT & RA, Gujarat Ayurved University, Jamnagar. Genuine samples of *Abhraka Bhasma* (Calcined mica) was also collected from Pharmacy, Gujarat Ayurveda University, Jamnagar; while *Sameera Pannaga Rasa* (Arseno-mercurial compound) and *Shringa Bhasma* (Calcined deer horn) was collected from ASFA Pharmacy, Surat and *Guda* (Jaggery) were taken from local market of Jamnagar.

The ingredients and part used are given below (Table 1).

Table 1: Ingredients of Shirisha Ashwagandhadi Avaleha Yoga

	Name of Drug	Latin/English Name	Parts Used	Proportion
<i>Kwatha Dravya</i>	<i>Shirisha</i>	<i>Albizzia lebbec</i> Benth.	St. Bark	1 Part
	<i>Vasa</i>	<i>Adhatoda vasica</i> Nees	Leaf	1 Part
	<i>Kushtha</i>	<i>Sausurrea lappa</i> C.B.Clarke	Root	1 Part
	<i>Kantakari</i>	<i>Solanum xanthocarpum</i> Schrad & Wendl.	Whole Plant	1 Part
	<i>Madhuyashti</i>	<i>Glycyrrhiza glabra</i> Linn.	Root	1 Part
	<i>Pushkarmula</i>	<i>Innula racemosa</i> Hook .	Root	1 Part
	<i>Bibhitaki</i>	<i>Terminnelia chebula</i> Retz.	Fruit	1 Part
	<i>Haridra</i>	<i>Curcuma longa</i> Linn.	Rhizome	1 Part
	<i>Ajamoda</i>	<i>Tracheospermum ammi</i> Sprague Linn	Fruit	1 Part
	Water	-	-	36 Part
<i>Prakshepa</i>	<i>Ashwagandha</i>	<i>Withania somnifera</i> Dunal	Root	0.44 part

Dravya	Churna			
	<i>Sitopaladi Churna</i> Containing: 1. <i>Sitopala</i> 2. <i>Tugakshiri</i> 3. <i>Pippali</i> 4. <i>Ela</i> 5. <i>Twaka</i>	Sugar Candy <i>Bambusa arundinacea</i> Willd. <i>Piper longum</i> Linn. <i>Elettaria cardamomum</i> Maton <i>Cinnamomum zeylanicum</i> Blume	-	0.88 Part
	<i>Abhraka Bhasma</i>	Ash of Purified mica	Mineral	0.11 Part
	<i>Sameerpannaga Rasa</i> Containing: 1. <i>Shuddha Parada</i> 2. <i>Shuddha Gandhaka</i> 3. <i>Malla</i> 4. <i>Manahshila</i> 5. <i>Hartala</i>	Purified mercury Purified sulphur Purified arsenic oxide Purified arsenic disulphide Purified arsenic trisulphide	-	0.03 Part

Method of Preparation of *Shirisha Ashwagandhadi Avaleha*

Drugs was prepared in the Pharmacy of ITRA Jamnagar, following Standard Operative Procedures adopted by the Pharmacy. After that the drugs were packed in air tight container and kept in a dry place at room temperature.

Pharmacognostical Evaluation

A. Microscopic Study: Individual raw drugs identified and verified with API, Finished drug was identified and authenticated by the Pharmacognosy lab, I.T.R.A., Jamnagar. The identification was carried out based on organoleptic features and microscopy of the prepared drug. For pharmacognostical evaluation, drugs studied under the Corl zeiss Trinocular microscope with staining and without staining. The microphotographs were also taken under the microscope.

B. Organoleptic Study: *Shirisha Ashwagandhadi Avaleha Yoga* was evaluated for organoleptic characters i.e. colour, odour, touch and taste.

Pharmaceutical Evaluation

A. Physico-chemical Analysis: Physico-chemical Parameters of *Shirisha Ashwagandhadi Avaleha Yoga* like loss on drying, water soluble extract and many more were determined as per the API guideline. *Shirisha Ashwagandhadi Avaleha Yoga* was further subjected to High Performance Thin Layer Chromatography (HPTLC) study.

B. HPTLC: Thin layer chromatography (HPTLC) study was carried out with dry methanol (MeOH) extract on pre-coated silica gel GF 60 F254 aluminium backed plate as 6mm bands, 8 mm apart and 15 cm from the edge of the plates, by means of a Camag Linomate V sample applicator fitted with a 100 µL Hamilton syringe. The mobile phase used was Toluene: Ethyl acetate (9:1 v/v). The plates were

developed in Camag twin trough chamber (20 x 10 cm²) and spots were detected in short U.V. (254 nm), Long U.V. (366 nm). Video Densitometry rTLC shiny app was used for documentation.

Results and Discussion

Study of *Shirisha Ashwagandhadi Avaleha Yoga* has been done to standardize the drug. For that Pharmacognostical and Pharmaceutical parameters were assessed.

1. Pharmacognostical Evaluation

1.1. Microscopic Study: The diagnostic characters of microscopic analysis of *Anutaila* Ingredients showed the Pismatic crystals of *Bala*, Pitted cells of *Bilwa*, Stone cells of *Brihati*, Xylum vessels of *Chandana*, Crystals of *Daruharidra*, Stone cells of *Devadaru*, Vessels of *Ela*, Multi cellular Trichome of *Jivanti*, Stone cell of *Kamalakesari*, Warty trichome of *Kantakari*, Crystals of *Musta*, Oxalate Crystals of *Nirgundi*, spiral vessel of *Prishnaparni*, Rosette cells of *Rasna*, Trichome of *Shalaparni*, Tannin content of *Sariva*, Starch of *Shatavari*, Tannin contain of *Agaru*, Crystals of *Talispatra*, Trichome of *Tejapatra*, Reticular Vessels of *Ushira*, Stone of *Utphala*, Lignified cells of *Vidanga*, Pitted vessels of *Yastimadhu* were found.

1.2. Organoleptic Study: *Shirisha Ashwagandhadi Avaleha Yoga* was evaluated for organoleptic characters i.e. colour, odour, touch and taste.

2. Pharmaceutical Evaluation

2.1. Physicochemical Tests: Pharmaceutical analysis of *Bilvadi Aschyotana Yoga* showed that loss on drying 2.10% w/w, ash value 1.63% w/w, water soluble extract 2.12% w/w, alcohol soluble extract 1.32% w/w, pH 7.5, specific gravity 1.0031 and refractive index 1.2997 (at room temp.) (Table 3).

2.2. HPTLC Study Results: Chromatographic study (HPTLC) was carried out under 254 and 366 nm UV to establish fingerprinting profile of which showed 6 spots at 254 nm and 8 spots at 366 nm with R_f values were recorded which may be responsible for expression of *Bilvadi Aschyotana Yoga* pharmacological and clinical actions. (Table 4) (Plate No. 3).

Table 2: Organoleptic Characters of *Shirisha Ashwagandhadi Avaleha Yoga*

Color	Golden Brown
Taste	Slightly aromatic
Odour	Sweet
Texture/ consistency	Semi Solid

Table 3: Physio-chemical Analysis of *Bilvadi Aschyotana Yoga*

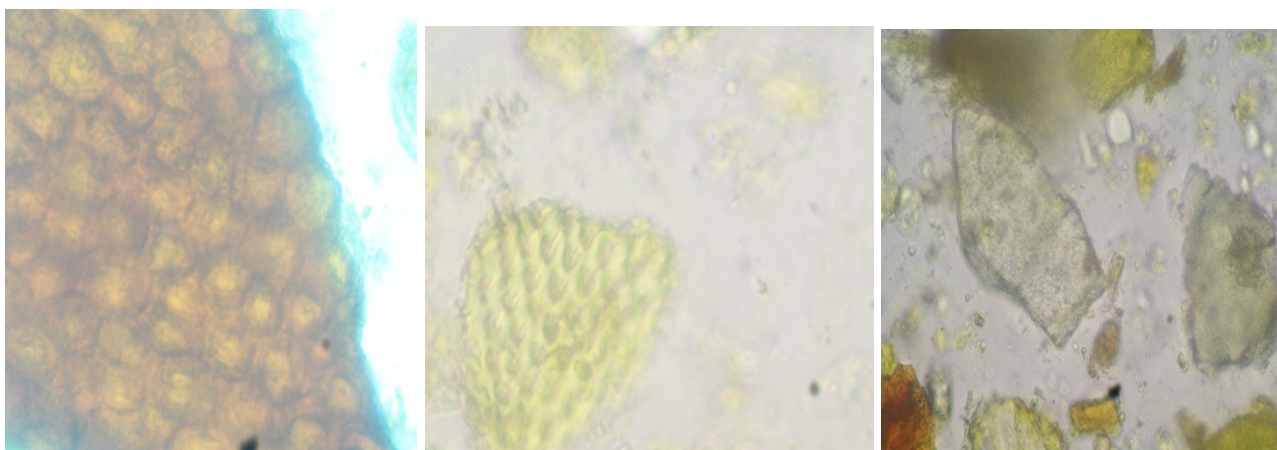
Loss on drying	10.55%
Ash value	4.55%
Water soluble extract	43.35% w/w
Alcohol soluble extract	50.25% w/w

pH value	5 (5% Aqueous)
Specific gravity	3.20

Table 4: High Performance thin Layer Chromatography (HPTLC)

Sample	No. of Spots	Observation	Max. R _f value
Shirisha Ashwagandhadi Ava Avaleha Yoga	20	Observed under Short U.V. Light (254 nm)	0, 0.07, 0.14, 0.18, 0.24, 0.28, 0.34, 0.29, 0.44, 0.49, 0.55, 0.58, 0.66, 0.69, 0.71, 0.76, 0.83, 0.89, 0.94, 0.99
Shirisha Ashwagandhadi Ava Avaleha Yoga	13	Observed under Long U.V. Light (366 nm)	-0.04, 0.03, 0.13, 0.28, 0.33, 0.38, 0.44, 0.48, 0.58, 0.65, 0.75, 0.93, 0.97

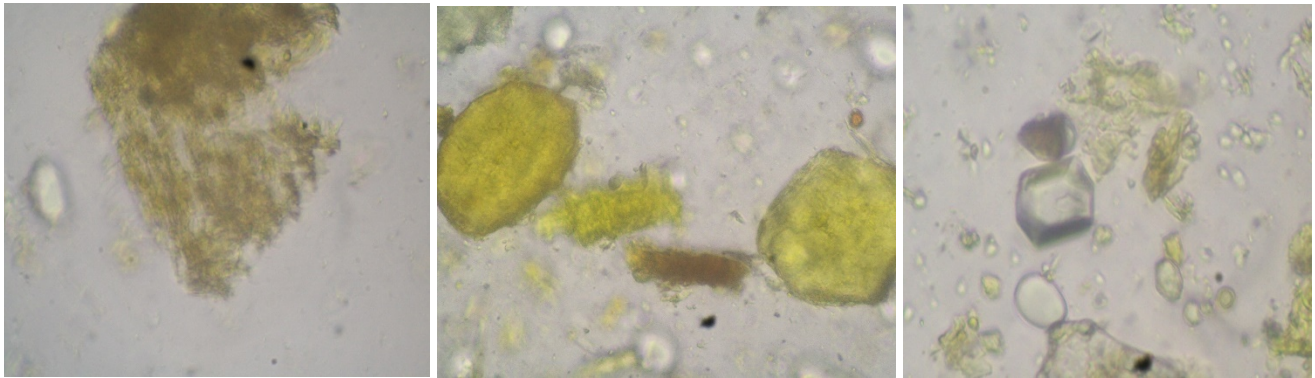
Plate 2: Microscopic Study of Shirisha Ashwagandhadi Avaleha Yoga



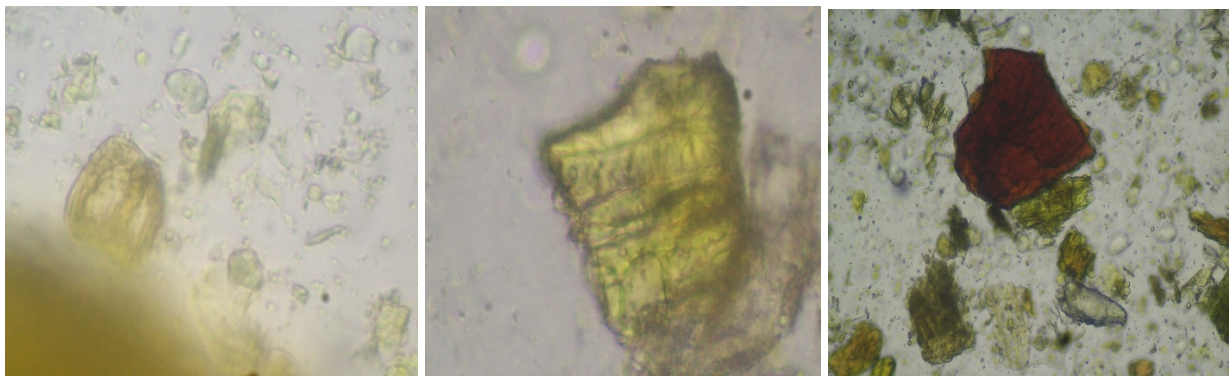
Black Debris of Pipalli Border Pitted Vessels of Kustha Cork Cells with Tannin of Sirisha



Exocarpous Cells with Brown Fibres Passing through Medullary Fragment of Scallary Form Content of Kustha Rays of Shirisha Vessel of Haridra

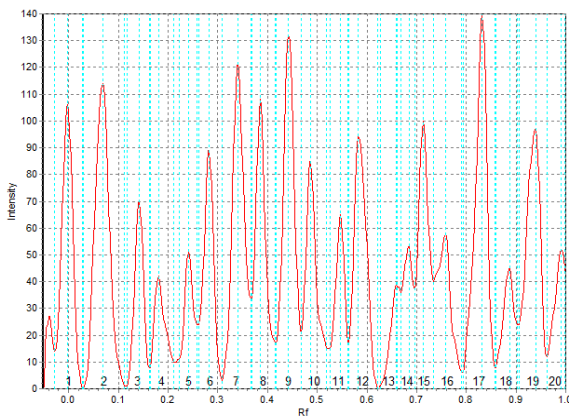


Mesocarpous Cells of Pipalli Parenchyma Cells of Haridra Rhomboidal Crystal of Shirisha

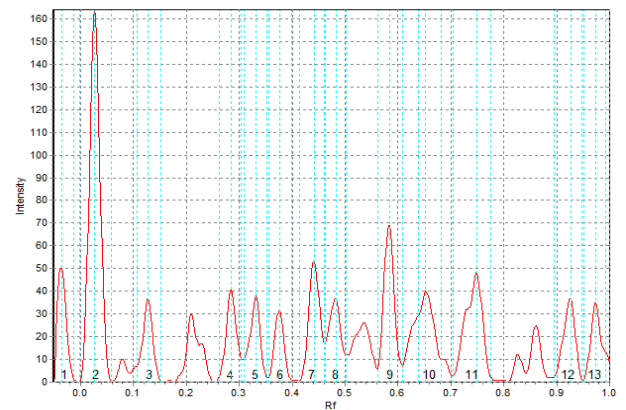


Stone Cell of Pippli Stone Cell of Shirisha Tannin Content of Shirisha

Plate 3: HPTLC Study: High Performance Thin Layer Chromatographic Study (HPTLC)



Observed under short U.V. light (254 nm)
Shirisha Ashwagandhadi Avaleha



Observed under long U.V. light (366 nm)
Shirisha Ashwagandhadi Avaleha

Discussion

Study of *Shirisha Ashwagandhadi Avaleha Yoga* has been done to standardize the drug formulation. Pharmacognostical study reveals the *Shirisha Ashwagandhadi Avaleha* showed the trichome of *Vibhitak*, deposition of Abharaka (silica) Anullar vessels of *Pushkarmula*, Fibers of *Twaka*, Prismatic crystal of *Shirisha*, Stillate trichom of *Kantakari*, Microcrystal of *Ela*, Stone cells of *Yesthimadhu*,

Pitted stone cell of *Vibhitaki*, Oil lobule of *Ashwagandha*, Simple Starch grains of *Tugakshiri*, Black debris of *Pippali*, Simple and compound Starch grains of *Kushtha*, Simple and compound Starch grain of *Ashwagandha*, Epicarp of *Ela*, Parenchyma cells and Starch grains of *Haridra*, Tannin content of *Shirisha*, Multicellular trichome of *Vasa*, Pitted vessels of *Yesthimadhu*, Stone cells of *Shirisha*, Scalaryiform vessels of *Haridra*, Pitted vessels of *Vasa*, Starch grains of *Kantakari*. The presence of all contents of raw drugs shows the purity of final product. Pharmaceutical analysis of *Shirisha Ashwagandhadi Avaleha Yoga* showed pH, water soluble extract, alcohol soluble extract etc. suitable for *Achyotana*. No any microbial growth found in final preparation till 90 days of preparation. The HPTLC is one of the advanced instrumental techniques for quantitative and qualitative analysis of herbal drugs. Study of this compound reveals the components are more sensitive to long U.V. light than short U.V. light. Further the HPTLC results can also be compared with standard of individual raw drug for obtaining and concluding standards for *Shirisha Ashwagandhadi Avaleha Yoga*.

Conclusion

Analysis through Pharmacognostical and Pharmaceutical shows suitability of drug for oral intake.

The results of these studies can be used for the reference standard, authentication and further researches.

References

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