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"An Analytical Review Of Shirishavaleha As An Ayurvedic Medicine"

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ABSTRACT

Shirishavaleha, an Ayurvedic formulation primarily composed of *Shirisha* (*Albizia lebbek*), is traditionally known for its anti-inflammatory, antimicrobial, and detoxifying properties. This review examines the potential therapeutic application of *Shirishavaleha* in the management of allergic conjunctivitis, a common eye condition characterized by inflammation of the conjunctiva due to allergic reactions. *Shirisha*'s anti-inflammatory, immunomodulatory, and detoxifying properties are beneficial in alleviating the congestion, irritation, and excessive discharge associated with *Abhishyanda*. The formulation works by balancing *Kapha*, reducing ocular inflammation, and promoting the clearance of toxins, which may help in managing allergic reactions and relieving symptoms of conjunctival inflammation. Additionally, the antimicrobial and antioxidant properties of *Shirishavaleha* may aid in preventing secondary infections and protecting the eyes from oxidative damage. Standardization of the compound formulation is the need of the present era to set standards for maintaining the quality of the products. Here an attempt has been made to study *Shirishavaleha* pharmacognostically, analytically and to develop fingerprints by High-Performance Thin Layer chromatography study (HPTLC).

Keywords - Netra Roga, Shirishavaleha, Abhishyanda, Conjunctivitis,

INTRODUCTION

The Ayurvedic classical texts describe *Abhishyanda*. *Abhishyanda* is type of *Sarvagata Netra Roga*¹ as having clinical feature like watery discharge, itching, and redness, which closely align with modern descriptions of allergic conjunctivitis. The *Shirisha Avaleha* is a systemic intake formulation. This formulation is based on *Shrisiarishta* which is described in *Bhaishajya Ratnavali* in *Visha Chikitsa*². The contents of *Shrisha avaleha* are *Shrisha* and *Prekshep dravya* are *Nagkeshara*, *Priyangu*, *Kushtha*, *Haridra*, *Daruharidra*, *Pippli*, *Shunthi*, *Nilini*, *Ela*, *Guda*. *Shrisha* is a drug multidimensional activities anti-allergic, mast cell stabilizer, immuno-modulator pharmacological action which is useful in treatment of vernal kerato-conjunctivitis. All *Prekshep Dravya Tridosha* karma & *Kapha-Vatta Shamak* which helpful in *Kaphaj Abhishyanda*.

Ayurvedic classics holds a number of formulations where *Shirisha* is one of the active components. *Shirisharista* is one amongst them. Although the *Arista* form of the drug is effective, it comes with certain limitations, including:

- A lengthy and time-consuming preparation process,
- Requirement for specific seasonal conditions for preparation,
- Necessity of temperature control during manufacturing,

In light of these drawbacks, the formulation of *Shirisharista* is being revised and transformed into *Shirishavaleha*.

Table 1 compositions of *Shirishavaleha*

Drug	Latin Name	Part used	Ratio
<i>Shirisha</i> ³	<i>Albizzia lebeck</i>	Bark	1/2 Tula
<i>Praksepa Dravyas</i>			
<i>Pippali</i> ⁴	<i>Piper longum</i> linn/Piperaceae	Fruit	1 Pala
<i>NagKesar</i> ⁵	<i>Mesua -ferrea</i> Guttiferae	Stigma	1 Pala
<i>Daruharidra</i> ⁶	<i>Berberis Aristata</i> Berberidaceae	Root Stem	1 Pala
<i>Shunthi</i> ⁷	<i>Zingiber-officinalis rose</i> Zingiberaceae	Root	1 Pala
<i>Ela</i> ⁸	<i>Elettaria Cardomum</i> Zingiberaceae	Fruit	1 Pala
<i>Priyangu</i> ⁹	<i>Callicarpa Macrophylla</i> Verbenaceae	Flower	1 Pala
<i>Kushtha</i> ¹⁰	<i>Saussurea lappa</i> Compositae	Root	1 Pala
<i>Haridra</i> ¹¹	<i>Curcuma longa</i> Zingiberaceae	Root	1 Pala
<i>Nilini</i> ¹²	<i>Indigofera tinctoria</i> Leguminosae	<i>Pachang</i>	1 Pala
<i>Guda</i> ¹³	Jaggery		2 Tula

Material and methods:

Collection of Raw Materials:

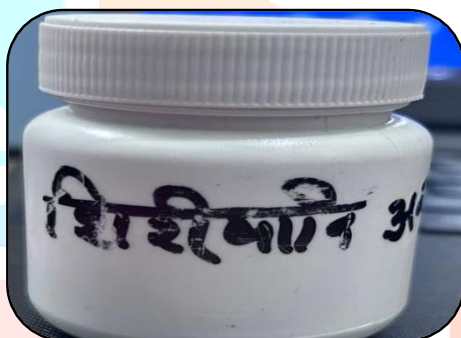
The raw drugs for the study were procured from the Herbal Automation Kankhal, Haridwar, Uttarakhand. The final product that is *Shirishavaleha* was prepared in GMP certified Anamika Pharmacy, Sidkul, Haridwar, Uttarakhand. The ingredients were identified by PG Department of *Dravyaguna*, Rishikul Campus, Haridwar.

Method of preparation of *Shirishavaleha*Fig : Bark of *Shirisha*Fig :Bark of *Shirisha* Grind

Fig : 16 times water

Fig : *Praksheph Dravya* powdered through mixture

Fig: Pass through sieve no. 80

Fig : Final Product (*Shirishavaleha*)

The bark of *Shirisha* was first cleaned and then grind. It was soaked in 16 times its weight in water overnight and then boiled until $1/4^{\text{th}}$ of the volume remained¹⁴. The mixture was filtered through a 300-mesh cloth. Guda was added, and the mixture was heated at 30°C to 40°C until the *Avaleha Siddha Lakshana* appeared. The *Praksheph Dravya*, which had been ground using a mixture machine and powdered through sieve no. 80, was then added. The remaining mixture was left to cool and then packed in airtight containers.

Analytical study

Prepared final product i.e. *Shirishavaleha* was analysed by employing various analytical parameters.

Organoleptic study

Organoleptic characteristics like color, appearance of *Shirishavaleha* were observed.

Physiochemical analysis**Table 2. organoleptic parameters of *Shirishavaleha***

Parameter	Result
Colour	Black coloured paste
Odour	Characteristic
Peroxide Value	0.00
pH (1% Solution)	5.20
Thermal Stability	Stable
Moisture by KF	22.93 %

Table 3. Microbiological Analysis of *Shirishavaleha*

Parameter	Result
Total Microbial Plate Count	<10 cfu/g
Total Yeast & Module Count	Absent
<i>S.aureus</i>	Absent
<i>Salmonella</i> sp.	Absent
<i>Escherichia coli</i>	Absent
<i>Pseudomonas aeruginosa</i>	Absent

Table 4. Heavy metal analysis of *Shirishavaleha*

Parameter	Result
Lead	0.392ppm
Cadmium	0.012ppm
Arsenic	0.027ppm
Mercury	0.062ppm

High Performance Thin layer chromatography (HPTLC):

HPLC (High-Performance Liquid Chromatography) Definition: HPLC, also known as High-Pressure Liquid Chromatography, is a widely used chromatographic technique for therapeutic drug monitoring. It is a form of column chromatography where the stationary phase consists of small particles (ranging from 3 to 50 μm) packed into a column with a narrow bore (2-5 mm). One end of the column is connected to a pressurized liquid source (mobile phase). In HPLC, the mobile phase is forced through the column under high pressure, enabling the separation of different compounds. The most common forms of HPLC are ion exchange, partition, and adsorption chromatography.

HPLC is particularly useful for analyzing compounds in herbal medicines, with reversed-phase (RP) columns being the most popular for analytical separations. It is regarded as a versatile, safe, reliable, fast, and sensitive chromatographic method, making it ideal for quality control in drug components. Both qualitative and quantitative analysis of drug materials can be efficiently performed using this method

Preparation of Test solution: Weigh accurately 500 mg of sample in a 25 mL Stopper Test tube. To it add 10 mL of Methanol and vortex for 10 minutes. On completion of time, Collect the supernatant layer from it . Then filter it with help of 0.22 μ syringe filter. Use the Test Solution thus obtained for HPTLC fingerprinting.

Preparation of Spray reagent [Anisaldehyde – sulphuric acid reagent]: 0.5 mL Anisaldehyde is mixed with 10 mL Glacial acetic acid, followed by 85 mL Methanol and 5 mL Sulphuric acid (98 %).

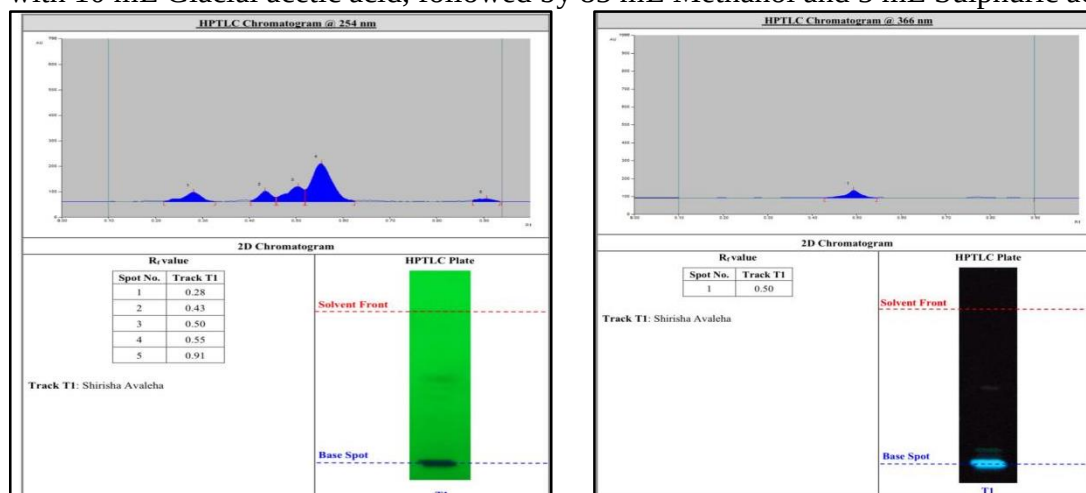


Figure : HPTLC profile of Shirishavaleha (a) At 254 nm,

(b) At 366 nm

Discussion

The analysis of the finished product using appropriate parameters is a crucial aspect of drug standardization. Standardization plays a key role in ensuring the quality control of herbal drugs. It is vital for establishing the safety and efficacy of the product. To achieve this, various quality control parameters are employed, including organoleptic characteristics, physicochemical properties, and HPLC analysis. Any alterations in the raw materials or preparation methods can lead to variations in these parameters, affecting the overall quality and consistency of the final product.

The pharmacognostical analysis revealed that the sample exhibited a black coloured paste. The texture and appearance of *Shirishavaleha* were sticky and semisolid. The taste was sweet and astringent, while the odor was sweetish and characteristic. The pH of the *Shirishavaleha* sample was found to be 5.2, indicating a semisolid consistency with a considerable moisture content. Physicochemical parameters are essential for evaluating the formulation's purity. The microbiological analysis demonstrated that the quality of *Shirishavaleha* remained stable under standard conditions, with bacterial and fungal levels within acceptable limits. Furthermore, the heavy metal test confirmed that the metal content was within the normal range.

Conclusion

Shirishavaleha, as an *Ayurvedic* formulation, demonstrates significant therapeutic potential supported by its pharmacognostical, physicochemical, and microbiological properties. The analysis confirms its effectiveness, with key attributes such as its characteristic black coloured paste, sticky semisolid texture, and sweet, astringent taste. The microbiological analysis indicates that *Shirishavaleha* maintains its quality under standard conditions, with bacterial and fungal levels remaining within acceptable limits, ensuring its safety for prolonged use. Moreover, the heavy metal test confirms that it is free from harmful contaminants, further supporting its potential as a safe therapeutic option. *Shirishavaleha* offers a promising approach in *Ayurvedic* practice, aligning with traditional therapeutic principles while meeting modern standards of safety and quality.

Shirisha Avaleha		Report Date	25.06.2024
		Sample ID	AD/24/186
Name of Scholar Dr. Vikas Kumar, Rishikul State Ayurvedic PG College, Haridwar			
CERTIFICATE OF ANALYSIS			
Sr. No.	Parameters	Result	Limit as per API
ORGANOLEPTIC ANALYSIS			
1	Description	Black coloured paste	NA
2	Odour	Characteristic	NA
PHYSICO-CHEMICAL ANALYSIS			
1	Rancidity	Not rancid	NA
2	Acid Value	6.73	NA
3	Peroxide Value	0.00	NA
4	pH (1 % Solution)	5.20	NA
5	Moisture by KF	22.93 %	NA
6	Thermal Stability	Stable	NA
INSTRUMENTAL ANALYSIS			
1	HPTLC Fingerprinting	Report attached	NA
HEAVY METAL ANALYSIS			
1	Lead	0.392 ppm	NMT 10 ppm
2	Cadmium	0.012 ppm	NMT 0.3 ppm
3	Arsenic	0.027 ppm	NMT 3 ppm
4	Mercury	0.062 ppm	NMT 1 ppm
MICROBIOLOGICAL ANALYSIS			
1	Total Microbial Plate Count (TPC)	< 10 cfu/g	10 ⁵ cfu/g
2	Total Yeast & Mould Count (TYMC)	Absent	10 ³ cfu/g
3	<i>Staphylococcus aureus</i>	Absent	Absent/g
4	<i>Salmonella sp.</i>	Absent	Absent/g
5	<i>Pseudomonas aeruginosa</i>	Absent	Absent/g
6	<i>Escherichia coli</i>	Absent	Absent/g
Kew-Word: API – Ayurvedic Pharmacopoeia of India; % - Percentage w/w, ppm - Parts per millions, NA – Not applicable, ND - Not detected, cfu/g – Colony forming unit per gram.			

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