**ABSTRACT**

The eye is the most highly specialized sense organ serving the most vital function of providing sight to living creatures. Ocular allergic in its many forms is one of the major causes of chronic conjunctivitis. The term conjunctivitis encompasses a broad group of condition presenting as inflammation of the conjunctiva. Allergic conjunctivitis is not infectious or contagious. It occurs when the body is exposed to materials that cause an allergic reaction, such as pollen or dander, and is often seasonal. Shigruharidradi Eye Drop Contains is Vata and Kapha Shamaka properties so it is reduce inflammation and redness of eye. Drugs are endowed with Shita, Madhura, and Drava qualities will be more effective in allergic conjunctivitis resulting in a healthy eye without any untoward effects. The present work was carried out to standardize the finished product Shigruharidradi Eye drop in terms of its identity, quality and purity. Pharmacognostical and Physico-chemical observations revealed the specific characters of all active constituents used in the preparation. The Pharmaceutical analysis showed that the Specific gravity is 1.04, Refractive index is 1.6330 and pH value is 3.549. HPTLC study of Shigruharidradi Eye drop revealed 3 spots at 254 nm and 2 spots on 366 nm.

**KEYWORDS:** Shigruharidradi Eye Drop, Netrabhishandhya (Allergic conjunctivitis), pharmacognosy, pharmaceutical analysis.

**INTRODUCTION**

Ayurveda, so called an eternal science, the science of life deals with spiritual, psychological and physical wellbeing of the individual. It covers the entire spheres of human life.
Netrabhishyandhya (Abhishyanda) is one among the Sarvagata Netraroga causing great threat to the vision with mild to gross visual loss. According to Acharya Sushruta, Abhishyanda is the main cause for all the eye diseases and it is Aupasargikaroga. In Sushruta Samhita four separate chapters have been devoted to the treatment of Abhishyanda after explaining Sarvagata Roga. It should be treated as soon as possible otherwise otherwise complications due to Abhishyanda will be severe in nature and difficult to save eyesight.\textsuperscript{1,2} General lines of treatment explained by our Acharya for Abhishyanda are Langhana, Tikta Anna sewana, Alepan, Swedana, Siravedhana, Virechana, Anjana and Aschyotana. Allergic conjunctivitis is a recurrent ocular pathology due to decreased immunity of the body and in Ayurveda it is addressed as Abhishandhya. Allergic Conjunctivitis (Prevalence 5-22\% of the general population; Recurrence in 41-62\% cases) has an equal distribution more or less throughout the world, without any exception to the developed and under developed countries.\textsuperscript{3}

*Shigru-Haridradi* Eye Drop was prepared for *Netrabhishyandya* in the pharmacy of Gujarat Ayurveda University. *The Shigru-Haridradi* Eye Drop contain Shigru Patra, Daruharidra Haridra, Yastimadhu and Madhu have potency to reduce inflammation, redness, pain and watering of eye. The raw materials procured from the pharmacy itself. In the management of Abhishyandhya Ashchotan treatment was adopted, So we developed eye drop for easy to carry and administration.

Eye drop was having multiple ingredients, Hence to confirm the authentically of raw drug as well as finished product, the Pharmacognosy study was carried out. Aims of these study is to authenticate the raw drugs Shigru-Haridradi Eye and analyse the Shigru-Haridradi Eye drop by using different physical and chemical parameters. Also comparing the individual ingredients with standard maintained in Pharmacognosy lab, I.P.G.T. & R.A., Jamnagar.

**Selection of Shigruharidradi eye drop**

*Shigruharidradi* Eye drops contains Shigru, Haridra, Daruharidra, Yashtimadhu and Madhu (Honey). Here *Shigruharidradi* Eye drops is selected because its ingredients having Vata-Kaphasamak\textsuperscript{4}, Chakshusya\textsuperscript{5}, Krimihara\textsuperscript{6}, Shothahara, Vedana Sthapakaand Vrana ropaka properties. Eye drops Ingredients are having Vata-Kaphashamaka and Chakshusya properties, so it is select for trial drug.
MATERIALS AND METHODS

Collection, Identification and Authentication of raw drugs

The raw materials were collected from the pharmacy of Gujarat Ayurved University, Jamnagar. The raw drug Shigra Patra, Daruharidra Haridra, Yastimadhu and Madhu identified and authenticated in the Pharmacognosy Department, Institute for Post Graduate Teaching and Research in Ayurveda, Gujarat Ayurved University, Jamnagar.

Ingredients of Shigruharidradi Eye Drop

Shigruharidradi Eye Drop is combination of five drug i.e Shigrupatra, Haridra, Daruharidra, Yashtimadhuand Madhu. Details are given in table no.1.

Pharmacognostical study

The Pharmacognostical study comprises of organoleptic study and microscopic study of individual ingredient Shigruharidradi Eye Drop.

Organoleptic Study

The Organoleptic characters of Ayurvedic drugs are very important and give the general idea regarding the genuinity of the sample. Organoleptic parameters like Taste, Colour, odour and touch were scientifically studied.[7]

Microscopic Study

Individual ingredient of Shigruharidradi Eye Drop was powdered and dissolved with water and microscopy of the sample was done without stain and after staining with Phloroglucinol + HCl. Microphotographs was also taken under Corl-zeiss trinocular microscope.[8]

Physico-chemical analysis

Individual ingredient of Shigruharidradi Eye Drop was analyzed using various standard physico-chemical parameters such as loss on drying, water soluble extract, alcohol soluble extract etc.[9]

High Performance Thin Layer Chromatography (HPTLC)

HPTLC was performed as per the guideline provided by API. Methanolic extract of drug sample was used for the spotting. HPTLC was performed using Toluene+ Ethylacetate+ Acetic acid (7:2:1) solvent system and observed under visible light. The colour and Rf values of resolved spots were noted.[10]
RESULTS AND DISCUSSION

Organoleptic Parameters

The organoleptic characters of the ingredient of *Shigru-Haridradi* Eye Drop are given in table no.2.

Microscopic Study

In microscopic examination of raw drug *Shigruharidradi* Eye Drop (Figure no.1) T.S. Rachis of *Shigru*, Rosette crystal *Shigru*, Spongy parenchyma *Shigru*, Sprial vessels *Shigru*, Stomata of *Shigru*, Oleorasin content of *Haridra*, Simple Parenchyma cells of *Haridra*, Starch with parenchymal cells of *Haridra*, Tangetially cork of *Haridra*, Fibres of *Daruharidra*, Lignified par of *Daruharidra*, Pitted stonecell of *Daruharidra*, Prism+fibre of *Daruharidra*, Compound starch grains of *Yastimadhu*, Rhamboidal crystal of *Yastimadhu*, Sleroides crystal of *Yastimadhu* are seen.

Analytical Study

In analytical study, three parameters are used i.e. specific gravity, refractive index and pH value. Result of analytical study (physico-chemical parameters) shown in table no.3.

HPTLC study

On performing HPTLC, visual observation under UV light showed few spots but on analyzing under densitometer much more was observed and at 254nm the chromatogram showed 3 peaks, at 366nm the chromatogram showed 2 peaks. Details shown in table no.4 and figure 2.

Table No. 1: Ingredients of *Shigruharidradi* Eye Drop.

<table>
<thead>
<tr>
<th>Sr.no</th>
<th>Drug</th>
<th>Latin name</th>
<th>Quantity</th>
<th>Part used</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Shigrupatra</td>
<td><em>Moringa oleifera</em> Lam</td>
<td>1 part</td>
<td>Leaves</td>
</tr>
<tr>
<td>2.</td>
<td>Haridra</td>
<td><em>Curcuma longa</em> Linn.</td>
<td>1 part</td>
<td>Rhizome</td>
</tr>
<tr>
<td>3.</td>
<td>Daruharidra</td>
<td><em>Berberis aristata</em> Roxb</td>
<td>1 part</td>
<td>Twak</td>
</tr>
<tr>
<td>4.</td>
<td>Yashtimadhu</td>
<td><em>Glycyrrhiza glabra</em> Linn.</td>
<td>1 part</td>
<td>Kand</td>
</tr>
<tr>
<td>5.</td>
<td>Madhu</td>
<td></td>
<td>1 part</td>
<td>-</td>
</tr>
</tbody>
</table>

Table no.2. The organoleptic characters of the ingredient of *Shigruharidradi* Eye Drop.

<table>
<thead>
<tr>
<th>Parameters</th>
<th>Shigru leaf</th>
<th>Haridra</th>
<th>Daruharidra</th>
<th>Yashtimadhu</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sparsha (Touch)</td>
<td>Coarse</td>
<td>Smooth</td>
<td>Smooth</td>
<td>Smooth</td>
</tr>
<tr>
<td>Rupa (Colour)</td>
<td>Green</td>
<td>Yellow</td>
<td>Yellowish</td>
<td>Yellowish</td>
</tr>
<tr>
<td>Rasa (Taste)</td>
<td>Bitter</td>
<td>Pungent</td>
<td>Bitter and astringent</td>
<td>Sweetish</td>
</tr>
<tr>
<td>Gandha (Odour)</td>
<td>Characteristic</td>
<td>Characteristic</td>
<td>Characteristic</td>
<td>faint and characteristic</td>
</tr>
</tbody>
</table>
Table no. 3: Physico-chemical analysis of *Shigruharidradi* Eye Drop.

<table>
<thead>
<tr>
<th>Sr.No</th>
<th>Test</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Specific gravity</td>
<td>1.04</td>
</tr>
<tr>
<td>2.</td>
<td>Refractive index</td>
<td>1.6330</td>
</tr>
<tr>
<td>3.</td>
<td>pH value</td>
<td>3.549</td>
</tr>
</tbody>
</table>

Table No. 04: Consolidated data of HPTLC of *Shigru Haridradi* Eye Drop.

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Number of spots</th>
<th>Max. Rf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short UV (254 nm)</td>
<td>3</td>
<td>193.8, 69.7, 41.4</td>
</tr>
<tr>
<td>Long UV (366 nm)</td>
<td>2</td>
<td>84.6, 13.6</td>
</tr>
</tbody>
</table>

T.S Rachis *Shigru*

Rosette crystal of *Shigru*
Spongy parenchyma *Shigru*

Sprial vessles *Shigru*

Stomata of *Shigru*

Olioresin of *Haridra*
Simple Parenchyma of *Haridra*

Starch with parenchymal cells of *Haridra*

Tangetially cork of *Haridra*

Fibres of *Daruharidra*
Lignified par of Daruharidra

Pitted stonecell of Daruharidra

Prism+fibre of Daruharidra

Compound starch grains of Yastimadhu
Rhamboidal crystal of *Yastimadhu*

Sleroides crystal of *Yastimadhu*

Figure 1: Microscopic study of raw drug *Shigruharidradi* Eye drop.

Short UV (254 nm)
CONCLUSION

Eye is delicate part of body, so Quality control of formulation given in Netrabhishyanda is very much necessary to assess its safety, purity and universal acceptability. Standardization is a measurement for ensuring the quality control enabling the reproducibility of the formulation. The pharmacognostical and physico-chemical analysis of Shigruharidradi Eye Drop confirmed the purity and genuinity of the drug. This study may be beneficial for future researchers and can be used as a reference standard in the further quality control researchers.

REFERENCES


2. Ashtanga Samgraha with indu commentary edited by Dr. Shiva Prasada Sharma 2006, Uttara Tantra 19/56 725.

3. http://www.hqlo.com/content /3/1/67 asses on 7/03/2018


9. Ayurvedic Pharmacopoeia of India PDF-1, Govt. of India, Ministry of health and family welfare, Delhi, 2007; 5, appendix-2.2.9: 214.