



Research Article

PRELIMINARY PHYSIOCHEMICAL EVALUATION OF NAGARADI OINTMENT: AN AYURVEDIC FORMULATION

Sarita Yadav^{1*}, Anupama Singh², Ranjana Negi³

¹Assistant Professor, Department of Shalakyta tantra, FIMS, SGT University, Gurgaon, Haryana,

²Assistant Professor, Department of Shalakyta tantra, Institute of Ayush Medical Science, Lucknow.

³Assistant Professor, Department of Shalakyta tantra, Om Ayurvedic Medical College, Hospital and Research Centre, Roorkee, India.

Article info

Article History:

Received: 01-07-2021

Revised : 26-07-2021

Accepted: 07-08-2021

Published: 25-08-2021

KEYWORDS:

Nagaradi ointment,
Chakshushya,
Kaphashamaka.

ABSTRACT

Plants serve as a very rich source of bioactive molecules, which are used to treat various acute and chronic diseases in Ayurveda. Medicinal plant materials are formulated into various types of Ayurvedic medicine either by ancient or modern methods where standardization plays a pivotal role for authentication. Standardization confirms the identity, quality and purity of drugs. WHO has set up various parameters to evaluate the crude drugs and their finished products. Now a day's application of several modern analytical techniques has become inevitable for evaluating quality, safety and efficacy of the polyherbal Ayurvedic formulations. Out of several formulations available in Ayurveda, *Anjana* is considered as unique in *Shalakyta Tantra* due to its various forms (which are prepared by different ways). This article is about the formation of *Nagaradi Anjana* as ointment which can be taken as a form of *Raskriyanjana*. Most of the ingredients of *Nagaradi* ointment are *Chakshushya* i.e., good for eyes and also have *Kaphashamak* properties. That is why they are useful in ocular diseased conditions which have dominance of *Kapha dosha* like *Kaphaja Abhishyanda*. Keeping all these points in view, the present study has been undertaken with the aim to make the Ayurvedic formulation in the form of *Raskriya Anjana* or ointment, from the herbal drugs, mentioned in *Astanga Sangraha*, an Ayurvedic classical text and to develop the physicochemical profile of it. The eye ointment was prepared by using vaseline as base which is mixed with powdered *Ghana Satva* of the herbal drugs.

INTRODUCTION

In Ayurveda ointment can be taken as the *Rasakriya* form of *Anjana*. *Nagaradi* ointment contains *Nagar*, *Haritaki*, *Vibhitaki*, *Amalaki*, *Nimba*, *Vasa*, *Lodhra*^[1] and it has its pharmacological action like *Kandhughn*, *Deepan-pachan*, *Sothahara*, *Srotoshodhaka* and *Shoolaprashaman* etc. Due to which it is effective on the symptoms like *Guruta* (heaviness of eyes), *Akshisopha* (swelling of lids), *Kandu* (itching in eyes), *Updeha* (stickiness of eyes) and other *Lakshana* of eye disease related to *Kaphaja Dosh*^[2].

Out of the above mentioned ingredient of *Nagaradi* ointment, *Vibhitaki* and *Amalaki*, are described as *Chakshushya*^[3,4], *Haritaki* is *Netrarujapaharini* i.e., it relieves pain in eyes^[5]. *Nimba* and *Lodhra* are described as *Netrayam* and *Chakshushya* respectively.^[6,7] *Haritaki* is also described as *Indriya Prasadini Lekhani* and *Chakshurhita*^[8]. The purpose of formation of *Nagaradi ointment* is to provide an easy and effective way of application which remains in contact with the surface for a greater time and thus will be more effective.

The report on the standardization of *Nagaradi Ashchyotana* is carried out to maintain the quality control of the drug by the proper identification of raw material at the basic level with the help of organoleptic characteristics, physicochemical and phytochemical parameters and TLC study.

Access this article online

Quick Response Code



<https://doi.org/10.47070/ijapr.v9i7.1953>

Published by Mahadev Publications (Regd.)
publication licensed under a Creative
Commons Attribution-NonCommercial-
ShareAlike 4.0 International (CC BY-NC-SA
4.0)

MATERIALS AND METHODS**Aims and objective**

1. To analyze the physical or organoleptic character of drug.
2. To find out the sterility test and TLC profile of *Nagaradi* ointment prepared by classical and modified methods.

Collection of Raw Materials

The raw drugs for the study (shown in figure 1-7) were procured from Hansa Pharmacy Sidikul, Haridwar Uttarakhand. The final product i.e., *Nagaradi* ointment was prepared in the Hansa Pharmacy Sidikul, Haridwar Uttarakhand.

Method of Preparation of Nagaradi Ointment

The *Nagaradi* Ointment was prepared according to the classical method of preparation of *Ghana Satva*. For the preparation of *Ghana satva* all the herbal drugs i.e., *Nagar*, *Haritaki*, *Vibhitaki*, *Amlaki*, *Vasa*, *Nimba* and *Lodhra* were taken in equal amount

i.e., 200gm each in dry form but *Nimbapatra* was taken in fresh form because in *Sharangdhar Samhita* it had been mentioned that *Nimb patra* should always be taken in wet form. Then all the dry crude material was dipped in eight times of water for 12 hours. After that *Nimba Patra* was also added and decoction was made till it remained $\frac{1}{4}$ of total quantity. Then this part of decoction was filtered twice and allowed to sediment for 12 hours. The sediment portion was left and the clear portion was again boiled till it become thicker like *Leha kalpna* as shown in fig-8. After that all that *Ghana satva* was dried into tray drier at temperature 35-40 degree Celsius and then powdered using a *Kharal Yantra*.

Then 40gm of the dry powder of *Ghana Satva* was mixed with 60gm of vaseline properly (fig.9). This portion was filled into eye ointment tubes and containers. (fig-10)

Table 1: Nagaradi Ointment ingredients

Drug	Latin Name	Family	PartUsed	Ratio
<i>Nagar</i>	<i>Zingiber officinale</i>	Zingiberaceae	Rhizome	200gm
<i>Haritaki</i>	<i>Terminalia chebula</i>	Combretaceae	Dry fruit	200gm
<i>Vibhitaki</i>	<i>Terminalia bellirica</i>	Combretaceae	Dry fruit	200gm
<i>Amalaki</i>	<i>Embllica officinalis</i>	Euphorbiaceae	Dry fruit	200gm
<i>Nimba</i>	<i>Azadirachta indica</i>	Meliaceae	Leaves	200gm
<i>Vasa</i>	<i>Adathoda vessica</i>	Acanthaceae	<i>Panchang</i> (whole)	200gm
<i>Lodhra</i>	<i>Symplocos recemosa</i>	Symplocaceae	Root	200gm

Analytical Study

Raw material and prepared final product i.e., *Nagaradi* Ointment were analyzed by employing various analytical parameters.

Physical Characterization Description or Organoleptic Study

Organoleptic characteristics for various sensory characters like appearance, color, odour, etc. were carefully noted down.

Table 2: Physical characterization of Nagaradi Ointment

Physical description	characterization
Appearance	A dark brown coloured semi solid mass
Taste	Semisolid
Colour	Characteristic
Odour	Dark brown
	Characteristic

pH value

pH was determined by using digital ph meter. One gram of ointment was dissolved in 100 ml of distilled water and stored for two hours and the measurement of ph was 5.4 which is weakly acidic.

Nagaradi ointment was further subjected to thin layer chromatography (TLC) study.

Sterility Test

Sterility test was done by the method mentioned under IP 2007, Vol-2 which shows that the drug tested was sterile.

TLC Profile

Instrument used for testing TLC Profile was silica plate. The stationary phase used was silica gel G G60F254 and mobile phase was toluene, ethyl acetate, formic acid (6:3:1). The plate was visualized under iodine vapors. RF values were recorded 0.34, 0.67, 0.91

Alfatoxins

Alfatoxins B1, B2, G1, G2 were tested by the method mentioned under A.P.I. Part II, Vol, appendices 2.7 which show no detection of alfatoxins.

Parameters	Specification	Result
Alfatoxins B1	0.5ppm	Not detected
Alfaoxins B2	0.1ppm	Not detected
Alfatoxins G1	0.5ppm	Not detected
Alfatoxins G2	0.1ppm	Not detected

Microbial Analysis

Nagaradi ointment was then evaluated for total aerobic microbial count and total yeast count. Total aerobic microbial count was carried out by plate count method, which is mentioned in A.P.I. part 2, vol-1 appendices -2-4.

Microbial limit test		
Parameters	Specification	Result
Total aerobic microbial count	10 ³	Less than 10
Total yeast and mould count	10 ³	Less than 10



Figure 1: *Azadiracta indica*



Figure 2: *Terminalia chebula*



Figure 3: *Adathoda vessica*



Figure 4: *Emblica officinalis*



Figure 5: *Symplocos racemosus*



Figure 6: *Terminalia chebula*



Fig.7: *Zinziber officinalis*



Fig.8: *Ghana Satva*



Fig 9: Vaseline



Fig10: Nagaradi ointment

Estimation of Vit-C

Vit-C was tested by the method mentioned in HPLC and the result recorded was 0.0012ug/gm.

DISCUSSION

Analytical study of the drugs deals with the analysis of the values of some physical constants and chemical values of the prepared formulation. Pharmacological analysis organoleptic evaluation was performed at final product i.e., *Nagaradi* ointment (observations of organoleptic analysis are tabulated in figure1).

Thin layer chromatography study (TLC) was carried out under 254 and 366nm UV to establish finger printing profile. It showed RF values 0.34, 0.67 and 0.91 were recorded which may be responsible for expression of its pharmacological and clinical actions.

CONCLUSION

After pharmacognostical evaluation of *Nagaradi* ointment it has been illustrated that there are some specific characters of the eye ointment preparation. In present analytical study, obtained results were found within normal prescribed limits as described in Ayurvedic pharmacopoeia of India. In this study all the physico-chemical parameters were found in acceptable range and all the samples were found to be free from microbial contamination. For the first time pharmaceutical and analytical profile of *Nagaradi* ointment was established. On the basis of TLC fingerprint profile and other physiochemical parameters, this study may be used as reference standard in further quality control researches. So the results of the study may be used as trail for the further development of Ayurvedic drugs formulation.

REFERENCES

1. Atridev Gupta, Astanga Hridya of Acharya Vagbhatt Vidhotini Hindi Teeka commentary by Suttrasthan 16/17, page no.831.
2. Atridev Gupta, Astang Hridya of Acharya Vagbhatt Vidhotini Hindi Teeka commentary by Suttrasthan 16/17, page no.831.
3. Professor K.C. Chunekar, A.M.S edited by G.S Pandey: Bhavprakash Nighantu Indian Materia Medica of Shri Bhavmisra published by Chaukhamba Bharti Academy, Varanasi, page no 8.
4. Professor K.C. Chunekar, A.M.S edited by G.S Pandey: Bhavprakash Nighantu Indian Materia Medica of Shri Bhavmisra published by Chaukhamba Bharti Academy, Varanasi, page no 10.
5. Professor K.C. Chunekar, A.M.S edited by G.S Pandey: Bhavprakash Nighantu: Indian Materia Medica of Shri Bhavmisra published by Chaukhamba Bharti Academy, Varanasi, P-5.
6. Professor K.C. Chunekar, A.M.S edited by G.S Pandey: Bhavprakash Nighantu: Indian Materia Medica of Shri Bhavmisra published by Chaukhamba Bharti Academy, Varanasi, page no 328.
7. Professor K.C. Chunekar, A.M.S edited by G.S Pandey: Bhavprakash Nighantu: Indian Materia Medica of Shri Bhavmisra published by Chaukhamba Bharti Academy, Varanasi, page no.128.
8. Professor K.C. Chunekar, A.M.S edited by G.S Pandey: Bhavprakash Nighantu: Indian Materia Medica of Shri Bhavmisra published by Chaukhamba Bharti Academy, Varanasi, page no. 5.

Cite this article as:

Sarita Yadav, Anupama Singh, Ranjana Negi. Preliminary Physiochemical Evaluation of Nagaradi Ointment: An Ayurvedic Formulation. International Journal of Ayurveda and Pharma Research. 2021;9(7):22-25. <https://doi.org/10.47070/ijapr.v9i7.1953>

Source of support: Nil, Conflict of interest: None Declared

***Address for correspondence**

Dr. Sarita Yadav

Assistant Professor,
Department of Shalakyta tantra,
FIMS, SGT University, Gurgaon,
Haryana.

Mob: 9810164407

Email: dryadav98@gmail.com

Disclaimer: IJAPR is solely owned by Mahadev Publications - dedicated to publish quality research, while every effort has been taken to verify the accuracy of the content published in our Journal. IJAPR cannot accept any responsibility or liability for the articles content which are published. The views expressed in articles by our contributing authors are not necessarily those of IJAPR editor or editorial board members.