World Journal of Pharmaceutical and Life Sciences

www.wjpls.org

Impact Factor: 7.409 Coden USA: WJPLA7

PHARMACOGNOSTICAL AND PHARMACEUTICAL ANALYSIS OF *RASNADI TAILA* - AN AYURVEDIC HERBAL FORMULATION FOR THE MANAGEMENT OF *VATIKA SHIRAHSHULA* (TENSION HEADACHE)

Dr. Roshan Prajapat*[1], Dr. Hetal Vyas[2]

[1]MD Scholar, [2]Assistant Professor

Department of Kayachikitsa, Institute of Teaching and Research in Ayurveda (ITRA) INI, Jamnagar, Gujarat, India 361008.

***Corresponding Author: Dr. Roshan Prajapat**

MD Scholar, Department of Kayachikitsa, Institute of Teaching and Research in Ayurveda (ITRA) INI, Jamnagar, Gujarat, India 361008. **DOI:** https://doi.org/10.5281/zenodo.18104271

How to cite this Article: Dr. Roshan Prajapat*1, Dr. Hetal Vyas2. (2026). Pharmacognostical and Pharmaceutical Analysis of Rasnadi Taila - An Ayurvedic Herbal Formulation For The Management of Vatika Shirahshula (Tension Headache). World Journal of Pharmaceutical and Life Science, 12(1), 88–92.

Article Received on 28/11/2025 **Article Revised on 18/12/2025** **Article Published on 01/01/2026**

ABSTRACT

In *Vatika Shirahshula* Acharya Charaka indicated *Rasnadi Taila Nasya*. Hence, *Rasnadi Taila Pratimarsh Nasya* was selected from Charaka Samhita Moreover; these drugs were selected because of their easy availability, and cost effectiveness. The formulation contains *Rasna* as the principal ingredient, renowned for its *Vatahara* and *Shulahara* actions. Other ingredients such as *Shalparni*, *Prushniparni*, *Brihati*, *Kantakari*, and *Gokshura* and *Godugdha*, *Tila Taila*. **Aim:** To prepare *Rasnadi Taila* and authenticate by physico-chemical parameters. **Materials and Method:** Pharmacognostical evaluation was carried out at Pharmacognosy Laboratory, ITRA, Jamnagar and Pharmaceutical & TLC study was done at Pharmaceutical Laboratory, ITRA, Jamnagar. **Results & Discussion:** Pharmacognostical study showed the presence of certain identifying characters of *Rasnadi Taila.* As per the preliminary physicochemical analysis, Viscosity 55.08cs, Acid Value was 8.029, Specific gravity was 0.914W/W, Iodine value was 100.54, and Saponification value was 13.932. Qualitatively TLC study showed eighteen spots at 366nm and Refractive index at 25 degree C was 1.4702. **Conclusions:** Pharmacognostical and physico-chemical observations revealed the specific characteristics of *Rasnadi Taila* confirmed the purity and genuinity of the drug.

KEYWORDS: *Rasnadi Taila*, *Vatika Shirahshula*, Tension headache, Pharmacognosy, Pharmaceutical analysis.

INTRODUCTION

In Ayurveda, *Shirahshula* (headache) is both a symptom of various diseases and a primary disorder categorized under *Shirohrogas*. Acharya Charaka emphasized the significance of the head, declaring it the most vital organ. Among the causative factors, *Vata* Dosha predominance is notably associated with *Shirahshula*, particularly aligning with the symptoms of modern tension-type headaches (TTH). TTH is the most prevalent form of primary headache, affecting nearly 90% of headache sufferers. In 2013, approximately 1.6 billion individuals (20.8% of the global population) were reported to have TTH. According to the WHO, about 50% of adults suffer from current headache disorders globally. In Ayurvedic management of *Vatika Shirahshula*, therapies such as *Snehana* (oleation), *Swedana* (sudation), and *Nasya* (nasal administration of medicated oils) are advocated.[1]

Rasnadi Taila mentioned in Charaka Samhita *Chikistasthana* - *Vatika Shirahshula*. The formulation contains *Rasna* as the principal ingredient, renowned for its *Vatahara* and *Shulahara* actions. Other ingredients such as *Shalaparni*, *Prushparni*, *Brihati*, *Kantakari*, and *Gokhsur* further enhance its *Vata-Kapha Shamaka*, *Vedana Sthapana* and *Srotoshodhaka* effects. *Taila* acts as a *Vata-Kapha hara Dravya* due to its *Snigdha* (unctuous) and *Ushna* qualities, counteracting the *Ruksha* (dry) and *Sheeta* (cold) properties of aggravated *Vata*. When administered through the nasal route (*Pratimarsh Nasya*), the medicated oil reaches the *Shirogata Srotas* (cranial channels), providing

nourishment to the *Indriyas* (sense organs) and *Manovaha Srotas* (mind channels). This result in *Vata Shamana*, *Kapha Vilayana*, improved of *Prana Vata* regulation, and relief from *Shirahshula*. Due to its unique property of action on *Shirah Pradesh*, this *Taila* was select for this study.

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. Therefore, 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 help in the globalization of Ayurveda. Hence, to evaluate the Authenticity of *Rasnadi Taila* through various pharmacognostical procedures, and to develop the pharmacognostical and phytochemical profile of *Rasnadi Taila* the present study was carried out.

AIM AND OBJECTIVES

The study is aimed to develop Standard Manufacturing Procedure of *Rasnadi Taila* and authenticate by evaluating through Physico-chemical analysis.

MATERIAL AND METHODS

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 part used of *Rasnadi Taila* are given in Table No. 1.

Table No. 1: Ingredients of *Rasnadi Taila*[2]

Drug	Latin Name	Family	Part Used	Quantity
Rasna	*Pluchea lanceolata C.B.Clarke*	*Compositae*	*Moola Twaka*	1 Part
Shalparni	*Desmodium gangeticum D.G.*	*Leguminosae*	*Panchanga*	1 Part
Prushniparni	*Uraria picta Dev.*	*Leguminosae*	*Panchanga*	1 Part
Brihati	*Solanum indicum Linn.*	*Solanaceae*	*Panchanga*	1 Part
Kantakari	*Solanum surattense Burm.f.*	*Solanaceae*	*Panchanga*	1 Part
Gokshura	*Tribulus terrestris Linn.*	*Zygophyllaceae*	Seeds	1 Part
Godugdha	-	-	-	Q.S
Tila Taila	*Sesamum indicum Linn.*	*Pedaliaceae*	*Taila*	Q.S

METHOD OF PREPARATION

Rasnadi Taila, *Kalka*, *Tila Taila*, and *Drava Dravyas* (*Kwath*a of *Rasna* and *Laghu Panchmoola)* were taken in the ratio of 1:4:16. Equal quantity of each *Rasna* and *Laghu Panchmoola* were taken for the preparation of *Kalka*. For the preparation of *Drava Dravyas*, each *Dravyas* was taken in equal quantity as per the ratio. Four times water will be added and will be heated until 1/4 remains for the preparation of *Kwatha*. *Mrudu Sneha Paka* were used for the *Pratimarsh Nasya Karma*. Afterwards it was filtered, and the prepared drug was stored under aseptic and good hygienic conditions.[3]

Fig.1 All the ingredients – Taken in equal quantity

Fig.2 *Kwatha* was prepared

Fig.3 *Kalka* was prepared

Fig. 4 *Godugdha* was added

Fig.5 Boiled till the symptoms of *Sneha Paka Siddhi* was observed

Fig.6 Prepared of *Rasnadi Taila*

Figure 1: Photographs of preparation.

PHARMACOGNOSTICAL STUDY

As per the API[4] standards the drugs which were used in the formulation and prepared as *Rasnadi Taila* was identified and authenticated by Pharmacognosy Laboratory, ITRA, Jamnagar.

ORGANOLEPTIC STUDY

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

MICROSCOPIC STUDY

Rasnadi Taila ingredients 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 *Rasnadi Taila* were taken under Carl-Zeiss trinocular microscope.[5]

PHYSICO-CHEMICAL ANALYSIS

Pharmaceutical- analytical study was carried out at pharmaceutical laboratory, ITRA, Jamnagar.

Qualitative Analysis consideration

Physico-chemical analysis was conducted to find out the following parameters,

1. Viscosity
2. Acid Value
3. Specific value
4. Iodine value
5. Saponification

Thin Layer Chromatography (TLC)

Thin layer chromatography (TLC) study was carried out at pharmaceutical laboratory, ITRA, Jamnagar.

MATERIALS AND METHODS

The TLC method is at present an important analytical tool for qualitative and semi quantitative analysis of a number of natural products. The adsorbent, such as Silica Gel G, is coated to a thickness at 0.3 mm or clean TLC plates using commercial spreader, the plate are activated at 105^0 C for 30 minutes and used. The selection of mobile phase depends upon type of constituents to be analysed. After the development of chromatogram by ascending technique, the resolved spots are revealed by spraying with suitable detecting agents.[6]

TLC conditions

Sample preparation: Drug is powdered and is extracted with Methanol for 1 hour and then filter and filtrate is used for TLC.
Stationary Phase: Merck pre-coated silica gel 60 F254 plate
Solvent system: Toluene: Ethyl Acetate: Formic acid: Methanol (6: 3: 0.1: 1)
Solvent front: 8.5 cm
Spray reagent: Anisaldehyde Sulphuric Acid Spray

OBSERVATION AND RESULTS

The initial purpose of the study was to confirm the authenticity the drugs used in preparation *Rasnadi Taila*. For this, all ingredients was subjected to organoleptic and microscopic evaluations to confirm the genuineness of the raw drugs. Later after the preparation of formulation, pharmacognostical evaluation was carried out. Organoleptic evaluation organoleptic features like color; odor and taste of *Rasnadi Taila* were recorded and are placed in Table No. 2 and Table No. 3.

Table No. 2: Organoleptic Characters of *Rasnadi Taila.*

No.	Characters	Observation
1.	Colour	Brownish
2.	Odour	Pleasant
3.	Teste	Astringent
4.	Touch	Smooth (Oily)

Microscopic Evaluation

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

Table No. 3: Microscopic Characters of *Rasnadi Taila.*

Fig.No.1.1: Stone cells of *Rasna*	Fig.No.1.2: Vessels of *Rasna*
Fig.No.1.3: Fibers of *Rasna*	Fig.No.1.4: Starch grains of *Rasna*
Fig.No.1.5: Annular vessels of *Shalaparni*	Fig.No.1.6: Lignified Parenchyma cells of *Prushniparni*
Fig.No.1.7: Spiral vessels of *Prushniparni*	Fig.No.1.8: Annular vessels of *Brihati*
Fig.No.1.9: Simple fibre of *Brihati*	Fig.No.1.10: Simple warty trichrome of *Brihati*
Fig.No.1.11: Starch grains with tannin of *Kantakari*	Fig.No.1.12: Stellate trichrome of *Kantakari*
Fig.No.1.13: Stone cells of *Kantakari*	Fig.No.1.14: Fibre of *Gokshura*
Fig.No.1.5: Lignified stone cells Group of *Gokshura*	

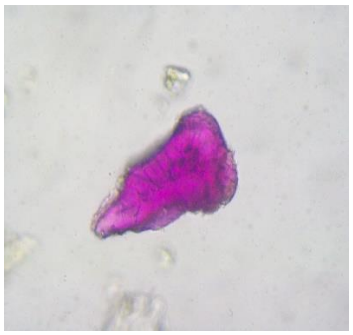

Fig.No.1.1

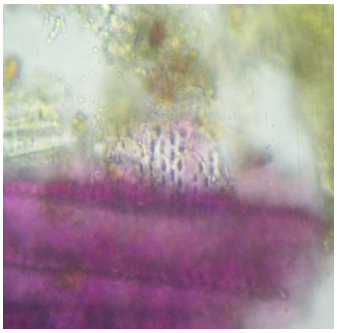

Fig.No.1.2

Fig.No.1.3

Fig.No.1.4

Fig.No.1.5

Fig.No.1.6

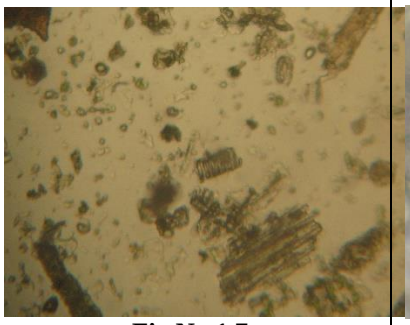

Fig.No.1.7

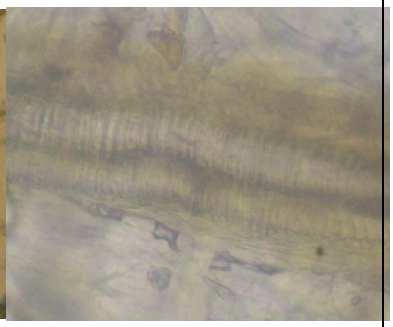

Fig.No.1.8

Fig.No.1.9

Fig.No.1.10

Fig.No.1.11

Fig.No.1.12


Fig.No.1.13

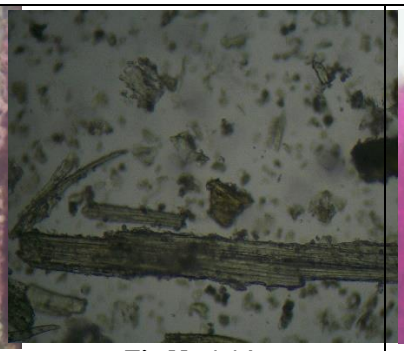
Fig.No.1.14

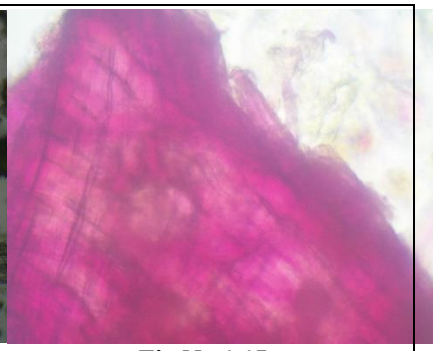
Fig.No.1.15

Figure 2: Microphotographs of *Rasnadi Taila.*

PHYSCICO-CHEMICAL ANALYSIS

Table No 4: Physico-Chemical parameters of *Rasnadi Taila.*

No.	Parameters	Observation
1.	Refractive index	1.4702
2.	Viscosity	55.08 cs
3.	Iodine value	100.54
4.	Acid value	8.029
5.	Specific gravity	0.914 W/W
6.	Saponification	13.932

TLC value of *Rasnadi Taila*

TLC fingerprinting was one of the fundamental objectives of present study. Below are the images of *Rasnadi Taila* TLC showing the separation of components at different level, at different wavelengths and after spray. TLC showed 11 spots under 254 nm, 18 spots under 366 nm and 10 spots after spraying with Anisaldehyde sulphuric acid spray. Refractive index at 25 degree C was 1.4702.

DISCUSSION

Study on *Rasnadi Taila* was a step towards pharmacognostical and pharmaceutical standardization of the drug. The pharmacognostical study revealed the presence of the diagnostic characters of *Rasnadi Taila.* The diagnostic characters are.

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 Iodine value 55.100.54, Acid value 8.029, Specifics gravity 0914 w/w, Saponification value 13.932 were analyzed and found to be in normal referential range. Refractive index was at 25 degree C was 1.4702.

CONCLUSION

The pharmacognostical and physico-chemical analysis *of Rasnadi Taila* 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 *Rasnadi Taila*. 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.

REFERENCES

1. Kate AN, Pohecpatil BV, Kotursshetti IB. A comparative clinical study to evaluate the effect of *Nasya* with *Rasnadi Taila* and *Balahatadi Taila* in *Vatika Shirashoola* w.s.r. to tension headache. Int J Creative Res Thoughts, 2025; 13(5). DOI: https://www.ijcrt.org/papers/IJCRT25A5519.pdf
2. BAcharya YT, editor. *Charaka Samhita of* Agnivesha, Chikitsa Sthana Ch. 26, Verse 160. Reprint ed. Varanasi: Chaukhambha Surbharati Prakashan, 2017.
3. Dr. Shailaja Shrivastava, editor. Sarngadhara-Samhita of Sri Sarangadharacarya. Madhyakhand chapter 9 shloka 1,2,3,6,12-16.Reprint Edition 2013 Varanasi: Chaukhamba Surbharati Prakashan, 2018; 215-217
4. The Ayurvedic Pharmacopeia of India, Pharmacopeia commission for Indian Medicine& Homeopathy, Edition-III, Part-1, IV., 87.
5. Wallis TE, Textbook of Pharmacognosy, 5th edition, New Delhi: CBS Publisher & Distributors, 2002; 123-132: 210-215.
6. Kowalska T, Sajewicz M. Thin-layer chromatography (TLC) in the screening of botanicals– its versatile potential and selected applications. Molecules, 2022; 27(19): 6607.