



Evaluation of an Ayurvedic Compound Formulation *Laghusutasekhara Rasa*

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ABSTRACT

India has vast heritage of traditional system of medicines, but due to lack of scientific evaluation, the people are unable to utilize the benefits of it, particularly those people who cannot afford the modern medicine. The utmost efficacy of medicines as specified in Ayurvedic system can be achieved if each and every formulation mentioned in the system would be scientifically evaluated and their desired efficacy could be maintained. Therefore, an attempt has been made to evaluate *Laghusutasekhara Rasa*, an Ayurvedic compound formulation used in various diseases. One sample from manufacture was procured and subjected to macroscopic, microscopic, physico-chemical and TLC/HPTLC finger printing analysis using authentic ingredient as control. Microscopic and TLC/HPTLC finger printing analysis of the sample was found to complement each other and are sufficient for establishing the identity of raw materials in the compound formulation.

Key word: Ayurvedic formulation, *Laghusutasekhara Rasa*, Microscopy, TLC/HPTLC, Finger printing.

INTRODUCTION

India having a rich heritage of traditional systems of medicine constituting with its different systems like *Ayurveda*, *Siddha* and *Unani*. Botanical constituents are the major part of these traditional medicines. The development of these traditional system of medicines with the perspectives of safety, efficacy and quality will help not only to preserve the traditional heritage but also to rationalize the use of natural products in the health care^{1,2}. Keeping this in mind, for the last two decades, efforts have been made in developing parameters of quality control for Ayurvedic single drugs as well as for compound formulations, which include macroscopic, microscopic characters, physicochemical values and TLC/HPTLC fingerprint profiles. The main problem in compound formulations is that most of them consist of several ingredients and the presence of each ingredient has to be established and should be analytically confirmed in the final product.

Laghusutasekhara Rasa is an Ayurvedic formulation. It is prescribed for the treatment for Pittaja śiraḥśūla, ardhāvabhedaka, sūryāvarta, pittaja unmāda, dāha, ūrdhvaraktapitta and mukhapāka³. So far no scientific study has been carried out on its standardization. With a view, an attempt has been made to scientifically evaluate and to

correlate the conclusions drawn from microscopic and TLC/HPTLC fingerprint profile. The *Laghusutasekhara Rasa* consists of Svarṇa gairika- *Suddh* (Red ochre) - 2 part, *Sunthi churna* (Dry rhizome of *Zingiber officinale* Roxb.)- 1 part and Nāgavallī svarasa (Leaf juice of *Piper betel* Linn.) - Q.S. for bhavana³.

MATERIALS AND METHODS

Sample of *Laghusutasekhara Rasa*, prepared by Ayurvedic pharmacies was procured. Authentic samples of *Sunthi* was used as controls. Macroscopic characters viz. colour, odour and taste of all samples were recorded. For microscopic analysis, a small quantity representative of the *Laghusutasekhara Rasa*, along with the genuine sample i.e. *Sunthi* were studied individually by preparing two slides for each one in water, stained with iodine mounted in glycerin and second one in chloral hydrate mounted with glycerine^{4,5}. Physico-chemical parameters viz. Loss on drying, total ash, acid insoluble ash, water- and alcohol- soluble extractives, iron identification test of the powdered *Laghusutasekhara Rasa* were carried out (in triplicate) according to the standard methods^{4,5}. The physico-chemical data of sample is tabulated (Table-1). TLC/HPTLC finger printing of the methanolic extract was performed on precoated plates using

acetone: n-hexane (21:79) as mobile phase and visualized with anisaldehyde-sulphuric acid reagent⁶.

RESULTS AND DISCUSSION

Laghusutasekhara Rasa sample from manufacture was subjected to analysis as above. The sample was reddish brown in colour, faint odour and astringent taste. Microscopic examination revealed the presence of *Sunthi* in the sample. The following characters i.e starch grains, parenchyma cells with wrinkled cell wall, oleoresin cells and parenchyma cells from *Zingiber officinale* Roxb was observed.(Fig.1).

The physicochemical parameters of the sample was studied. The values of Physico-chemical parameters viz. Loss on drying, total ash, acid insoluble ash, water- and alcohol-soluble extractives of the powdered *Laghusutasekhara Rasa* were 1.24, 74.28, 58.84, 14.82 and 4.42 respectively. It showed the positive in the iron identification test.

The TLC/HPTLC fingerprint profiles of the authentic sample i.e. *sunthi* was compared with the profiles of sample of *Laghusutasekhara Rasa*. When observed after derivitization on day light, six spots at R_f 0.79 (pink,), 0.50, 0.42 (light purple), 0.38(pink) and 0.35, 0.28 (light purple) were observed both in *Sunthi* and *Laghusutasekhara Rasa*. Thus the TLC/HPTLC fingerprint revealed that the presence of the ingredient in the sample.

CONCLUSION

The evaluation of an Ayurvedic compound formulation of *Laghusutasekhara Rasa* was based on outcome microscopical, physicochemical and TLC/HPTLC fingerprint profile. These parameters are quite helpful for identification and prevention of adulteration. The results were found to be highly accurate, quick and reliable for routine monitoring based on quality control of raw material and compound formulations.

Table – 1: Physico-chemical analysis of *Laghusutasekhara Rasa* samples (Values are means of three determinations)

Sr. No.	Parameters	<i>Laghusutasekhara Rasa</i>
1.	Loss on drying (105 ⁰ C) (w/w)	1.24
2.	Total ash	74.28
3.	Acid insoluble ash	58.84
4.	Water soluble extractive	14.82
5.	Alcohol soluble extractive	4.42
6.	Iron identification test	+

+ = Present

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Fig.1. Microscopy of *Laghusutasekhara Rasa*

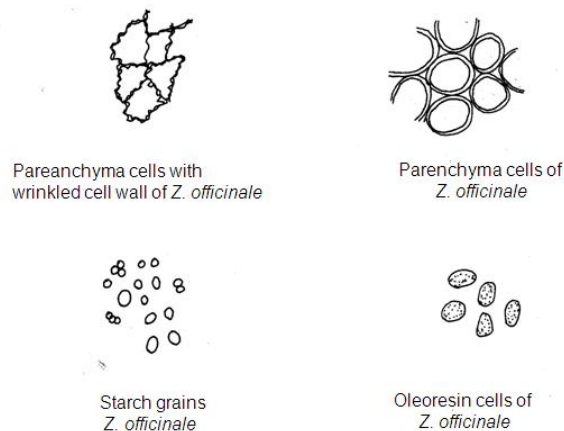


Fig.2. TLC/HPTLC finger print profile of *Laghusutasekhara Rasa*



Track T₁- *Sunthi*, T₂-*Laghusutasekhara Rasa*

REFERENCES

- 1) Mukherjee PK, Exploring botanicals in Indian System of medicine-Regulatory perspective. Clinical Research Regulatory Affairs, 2003, 20: 249-264.
- 2) Mukherjee Pk and Wahile A. Integrated approach towards drug development from Ayurveda and other Indian systems of medicine. J. of Ethnopharmacology, 2006, 103: 25-35.
- 3) Anonymous. The Ayurvedic Formulary of India, Part II, Govt. of India, Ministry of Health and family Welfare, DISMH, New Delhi, 2003.
- 4) Anonymous. The Ayurvedic Pharmacopoeia of India. Part I: Vol. II, Govt. of India, Ministry of Health and family Welfare, DISMH, New Delhi, 1998, 259.
- 5) Anonymous. Quality Control methods for medicinal plant materials. WHO. Geneva. 1998.
- 6) Wagner H and Bladt S. Plant Drug Analysis. A thin layer chromatography Atlas. Springer Germany, 1996.