

Analytical Evaluation of Kalagnirudra Rasa

Nanditha Kamath¹, Ravi R. Chavan²

¹PG Scholar, ²Associate Professor

^{1,2}Department of Rasashastra & Bhaishajya Kalpana,

^{1,2}Taranath Govt. Ayurvedic Medical College, Ballari, Karnataka, India

ABSTRACT

Kalagnirudra Rasa is *Ushna*, *Teekshna*, *Sagandha*, *Kupeeluyukta* herbo-mineral formulation mentioned under *Vatavyadhichikitsadhikara* in the text *Basavarajeeyam*. It has ingredients like *Shuddha Parada*, *Shuddha Parada*, *Shuddha Vatsanabha*, *Shuddha Gandhaka*, *Ajamoda*, *Triphala*, *Sarjakshara*, *Yavakshara*, *Shuddha Chitraka*, *Saindhava Lavana*, *Jeeraka*, *Sauvarchala Lavana*, *Vidanga*, *Shuddha Tankana*, *Trikatu* and *Shuddha Kupilu*. *Shuddha Kupilu* is the main ingredient. In the present study, *Kalagnirudra Rasa* was prepared as per the guidelines given in the classical text book *Basavarajeeyam* and Physico-chemical analysis was carried out. *Kalagnirudra Rasa* was prepared in the pharmacy of TGAMC, Ballari, Karnataka and was subjected to analysis on parameters like Organoleptic Characters, Loss on drying, Total Ash, Acid insoluble Ash, Water soluble ash, Alcohol soluble extractive and Water soluble extractive value. The study showed significant result.

KEYWORDS: *Kalagnirudra Rasa*, Physico-chemical analysis

INTRODUCTION

The analytical study reveals out chemical composition of formulation as well as their concentration. By this, it helps to ensure safety limits and accuracy of the drug. Physico-chemical analysis of the drugs are carried out by using current analytical methodologies for understanding and interpretation of physico-chemical changes occurring during and after pharmaceutical processing.

The present trend in applied instrumental medical research encourages good medical practice, clinical and research-based drug analysis. The main aim of analytical study is to find out working standards for the formulations and safe use of therapeutics.

Now a days it is the era of globalization, everything should be explained in universal language. Though Ayurveda explained much about analysis in its unique fashion, in present days there is a necessity of understanding a drug based on modern technology of analysis too.

In preparation of *Rasaushadhies* precaution should be taken throughout the whole procedure. Genuine medicines can be prepared by following Standard operating procedures. To ensure therapeutic efficacy, traditional formulations must be standardized. To prevent adulteration, spurious products and to give protection to consumer, it is obligatory that all physico-chemical analysis must be carried out. Sample of *Kalagnirudra Rasa* was evaluated in terms of organoleptic characters and physico-chemical parameters and results were recorded.

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INTRODUCTION

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MATERIALS AND METHODS

Raw drugs required for preparation were collected from Kajrekar Pharmacy, Belagavi and Anamaya Herballa, Udupi. Preparation of *Kalagnirudra Rasa* was carried out in Teaching Pharmacy of Department of P.G. Studies in RS & BK, TGAMC, Ballari.

Pharmaceutical Preparation

The preparation was carried out following the method mentioned in *Basavarajeeyam*¹.

Parada was extracted from *Hingula* by *Urdhwapatana* method.

Shodhana of *Gandhaka* in *Godugdha* by subjecting it to *Kurma Puta* by *Bhudhara Yantra* method.

Shodhana of *Vatsanabha* by *Gomutra Sthapana* for 3 days.

Shodhana of *Chitrakamoola* by *Choornodaka Sthapana* for a day

Shodhana of *Tankana* by *Bharjana*.

Shodhana of *Maricha* by giving *Bhavana* with *Amla Takra*.

Shodhana of *Pippali* by *Chitrakamoola rasa Bhavana*.

Shodhana of *Kupilu* by *Goghrita Bharjana*.

Initially *Hingulottha Parada* was triturated with *Shuddha Vatsanabha* for 6 hours. Then, *Shuddha Gandhaka* was added and triturated till *Kajjali Siddha Lakshanas* were obtained. To this other ingredient were added in the order as mentioned in the verse and *jambheera rasa mardana* was carried out for

12 hours. After 12 hours, final product was dried under shade and stored in an air tight glass container.

Analytical Study

Sample of *Kalagnirudra Rasa* and other required things were taken as materials.

The physico-chemical analysis of the sample of *Kalagnirudra Rasa* was done at ALN Rao Ayurvedic Medical College, Koppa. Organoleptic characters like colour, odour, taste and consistency were recorded along with the evaluation of parameters like Loss on drying², Total ash³, Acid Insoluble ash³, Water soluble ash³, Alcohol soluble extractive value², Water soluble extractive value² and pH⁴ by following standard procedures.

RESULTS

Organoleptic characters of *Kalagnirudra Rasa*

- Colour-Greyish Black
- Taste- Bitter, Astringent
- Smell-Teekshna
- Consistency-Hard

Table 1: Results of Physico-Chemical analysis of *Kalagnirudra Rasa*

Parameters	Results
Loss on drying	5.63%
Total Ash	9.09% w/w
Acid insoluble ash	1.94%
Water soluble ash	2.61%
Alcohol Soluble extractive value	12.918%
Water soluble extractive value	19.672%
pH	3.18±0.10

Loss on Drying

In the present study, *Kalagnirudra Rasa* possessed 5.63% loss on drying at 105° C.

Ash Value

The inorganic material present in the drug constitutes ash value. The percentage of Total Ash value of *Kalagnirudra Rasa* is 9.09%.

Acid Insoluble Ash

The Acid Insoluble Ash is the residue obtained after boiling the total ash with Dilute HCl and igniting the remaining insoluble matter, this measures the amount of acid insoluble materials like Silica. The acid insoluble ash of *Kalagnirudra Rasa* is 1.94%.

Water Soluble Ash

Water soluble ash is difference in between total ash and residue after treatment of total ash with water. The percentage of water soluble ash value of *Kalagnirudra Rasa* is 2.61%

Alcohol Soluble Extractive

The percentage of Alcohol Soluble extractive value of *Kalagnirudra Rasa* is 12.918%.

Water Soluble Extractive

The percentage of Water Soluble Extractive value *Kalagnirudra Rasa* is 19.672%

pH Value

The pH value of *Kalagnirudra Rasa* is 3.18±0.10. It is acidic in nature due to *mardana* with *Jambeera Rasa*.

DISCUSSION

Discussion on Loss on drying:-

Loss on drying of *Kalagnirudra Rasa* is 5.63%

So, it can be stated that *Kalagnirudra Rasa* possess moisture content in very less amount and hence very rare chance of bacterial and fungal growth and also the drug is having least or nil hygroscopic activity and the drug deterioration chance or contaminations chances etc. are very less. Concurrently it can be stated that the shelf life of the drug is also more.

Discussion on Total Ash Value:-

Total ash value of *Kalagnirudra Rasa* is 9.09%w/w.

This indicate that in the present study herbo-mineral preparation contains less amount of inorganic constituents and more amount of organic and bio human available particles.

Discussion on Acid insoluble ash:-

Acid insoluble ash of *Kalagnirudra Rasa* is 1.94%.

More the acid insoluble ash, less the drug absorption in acid media of stomach. Hence the preparation is absorbable in acid media of stomach.

Discussion on Water soluble ash:-

Water soluble ash value of *Kalagnirudra Rasa* 2.61%.

It denotes water is a soluble media for it. The salivary secretions, gastric enzymes play an important role in the efficacy of drug. KRR is a herbo-mineral formulation and the presence of inorganic substance in the formulation might make this drug less soluble in the water media.

Discussion on Water and Alcohol Soluble Extractive:-

Water and Alcohol Soluble Extractive values of *Kalagnirudra Rasa* are 19.672% and 12.918% respectively.

The percentage of water soluble extracts are almost more than that of alcohol soluble extracts, which clearly indicates that the water is the best suitable media for this formulation to exhibit its pharmacological actions. Reason may be that KRR is herbomineral compound; mineral drugs are less soluble in alcohol.

Discussion on pH:-

pH value of *Kalagnirudra Rasa* is 3.18±0.10. All the products were found to be acidic in nature which indicates that they can be easily absorbed in stomach by passive diffusion

Analytical study is carried out to check drug quality. For this purpose, some analytical tests are performed. In the present study when the sample of *Kalagnirudra Rasa* was analyzed, their analytical results are within permissible limits. Analytical parameters of the current study are depicted in Table No. 1. Loss on drying is designed to measure moisture content and volatile matter in a sample and pH value provides a useful practice means for the quantitative indication of the acidity or alkalinity of a solution. It is acidic in nature because of *Jambeera Rasa* which is used for *mardana*. *Rasaushadhi* is considered better if ash value is

more. Acid insoluble ash is non physiological ash which shows presence of Silica content. In current study, it is in permissible limits.

CONCLUSION

Pharmaceutical processing increases the potency of the formulation hence, increasing the clinical efficacy and also makes it stable when exposed to external environment. Quality of the end product can be accessed by performing analytical study. It is the need of the time to standardize classical Ayurvedic formulations for global acceptability of these formulation.

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