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Research Article

PRELIMINARY PHYSICO CHEMICAL EVALUATION OF THE INGREDIENTS OF RASNA SAPTAKA KASHAYA

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ABSTRACT

Introduction and Objectives: The quality of Ayurveda medicines has to be maintained from raw material selection to packaging. The present study was thus carried out using reliable, specific and sensitive quality control methods of analysis for standardization of raw drugs. Methods: Seven sample drugs were collected from Sri Dharmastala Manjunatheshwara Ayurveda Pharmacy, Udupi which included Rasna (*Alpinia galanga*), Guduchi (*Tinospora cordifolia*), Aragwadha (*Cassia fistula*), Devadaru (*Cedrus deodara*), Gokshura (*Tribulus terrestris*), Erandamoola (*Ricinus communis*) and Punarnava (*Boerhavia diffusa*). The samples were subjected to detailed physico chemical study. Results and Discussion The parameters under consideration included Loss on drying, Total Ash, Acid Insoluble ash, Alcohol soluble and water-soluble extractive values. The result of the present study reveals that the selected sample drugs met the pharmacopeia standards in most of the criteria of assessment. The outcome of the work suggests periodical assessment of raw drugs for quality control of Ayurveda Formulations.

Keywords: Standardization, physico chemical study, rasna saptaka kashaya

INTRODUCTION

Natural product remains a prolific source of discovery of new drugs from the ancient *Vedic* period. The herbal drugs represent a major part of all the traditional systems of medicine. They are an integral part of our food and human health care. Based on WHO report approximately 80 percent of the world's population are based on treatment with herbal medicines. The World Health Organization (WHO) has appreciated the importance of medicinal plants for public health care in developing nations and has evolved guidelines to support the member states in their efforts to formulate national policies on traditional medicine and to study their potential usefulness including evaluation, safety, and efficacy[1-3].

The need of quality control for Ayurveda drug is due to the fact that the preparation of drug according to the ancient method has been reduced due to the commercialization of Ayurveda pharmacy during past era[4] .With increasing demand for safer drugs, attention has been drawn to the quality, safety, efficacy, and standards of the Ayurveda formulations[5].To have a good coordination between the quality of raw materials, in process materials and the final products , it has become essential to develop reliable, specific and sensitive quality control methods using a combination of classical and modern instrumental methods of analysis.

Evaluation of a drug means confirmation of its identity and determination of its quality and purity and detection of its nature of adulteration. In order to obtain quality herbal products, care should be taken from the proper identification of plants, season and area of collection, extraction and purification process and rationalizing the combinations.

Rasnasaptaka kashaya[6]is an excellent combination useful in treating different musculoskeletal and joint disorders. Osteoarthritis, rheumatoid arthritis, lumbago, sciatica, spondylosis, general spinal pain reacts well to this Ayurveda medication. While rasna, guduchi and devadaru are amazing analgesics and anti-inflammatory drugs, gokshura and punarnava are powerful diuretics and hence diminish swelling. Eranda and aragwadha are known to be good laxatives.

Hence the study was carried out to evaluate the physico chemical properties of the Ingredients of Rasna Saptaka Kashaya.

MATERIALS AND METHODS

Sample Collection

The sample drugs were collected for the study from Sri Dharmastala Manjunatheshwara Ayurveda Pharmacy, Udupi, Karnataka and Authentication of the Drugs was done by the Department of Dravya Guna of Sri Dharmastala Manjunatheshwara College of Ayurveda, Hassan, Karnataka.

Methodology[7]

Loss on drying at 105ºC:
Test sample was taken in the amount of 10 grams and set in tarred vanishing dish. It was dried at 105˚C for 5 hours in hot air oven and gauged. The drying was proceeded until contrast between two

progressive loads was not more than 0.01 subsequent to cooling in desiccator. Percentage of moisture was calculated with reference to the weight of the sample.

Total Ash:
2 g of test sample was burned in a tarred platinum crucible at temperature not surpassing 450˚C until carbon free cinder is obtained. Level of ash was determined with reference to weight of the example.

Acid insoluble Ash:
To the crucible containing total ash, add 25ml of dilute HCl (Hydrochloric Acid) and boil. Gather the insoluble matter on ash less filter paper (Whatman 41) and wash with hot water until the filtrate is neutral Transfer the filter paper containing the insoluble matter to the original crucible, dry on a hot plate and ignite to constant weight. Enable the residue to cool in suitable desiccator for 30 minutes and weigh immediately. Figure the content of acid insoluble ash with reference to the air-dried drug.

Alcohol soluble extractive:
Weigh precisely 4 g of the sample in a glass stoppered flask. Add 100 ml of distilled Alcohol (around 95%). Shake once in a while for 6 hours. Permit to represent 18 hours. Filter rapidly taking care not to lose any solvent. Pipette out 25ml of the filtrate in a pre-gauged 100 ml receptacle. Evaporate to dryness on a water bath. Keep it in an air oven at 105˚C for 6 hours, cool in desiccator for 30 minutes and gauge. Compute the level of Alcohol extractable matter of the sample. Repeat the investigation twice and take the average value.

Water soluble extractive:
Weigh precisely 4 g of the example in a glass stoppered flask. Add 100 ml of distilled water, shake occasionally for 6 hours. Permit to represent 18 hours. Filter quickly taking consideration not to lose any solvent. Pipette out 25ml of the filtrate in a pre-gauged 100 ml container. Evaporate to dryness on a water bath. Keep it in an air oven at 105˚C for 6 hours. Cool in a desiccator and gauge. Repeat the investigation twice. Take the average value.

RESULTS

Table I: Physico chemical Parameters assessed in the Ingredients of Rasna Saptaka Kashaya

Sl. No	Test Done	Obtained Value						
		Rasna	Guduchi	Aragwadha	Devadaru	Gokshura	Eranda	Punarnava
01	Foreign Matter	0.57%	1.074%	Nil	0.1%	11.49%	Nil	Nil
02	Loss on Drying	9.3%	10.2%	13.96%	6.7%	10.1%	12.2%	9.2%
03	Total Ash	13%	7%	3.36	6.5%	12.5%	6.5%	11.5%
04	Acid Insoluble Ash	6%	0.5%	0.17	2.5%	3%	0.5%	7%
05	Alcohol Soluble Extractive	6.4%	4.8%	31.77	13.6%	4.8%	2.4%	4%
06	Water Soluble Extractive	33.6%	12.8%	51.57	1.6%	13.6%	4.8%	14.4%

DISCUSSION

The Physico-chemical evaluation of the drug is an important parameter in detecting adulteration or improper handling of drugs. The extractive values are used to evaluate the chemical constituents present in the crude drug and also help in estimation of specific constituents soluble in a particulars solvent[8].

Loss on drying is a widely used test method to determine the amount of volatile matter of any kind (including water) that can be driven off under the condition specified. It compares the weight of a product before and after it is dried. This difference in weight is taken as the percentage of moisture in the product. The present study reveals that among the samples collected maximum moisture content was present in Aragwadha fruit (13.96%) and Erandamoola (12.2%).

The ash content of a crude drug is generally taken to be the residue remaining after incineration. It usually represents the inorganic salts naturally occurring in the drug and adhering to it, but it may also include inorganic matter added for the purpose of adulteration. Ash determination furnishes a basis for judging the identity and cleanliness of a drug. Among the sample drugs subjected to Ash Value, except Devadaru samples all the other sample values were within the Standard Limits.

Acid Insoluble Ash value is used to determine the earthy matter present in the roots, rhizomes and even leaves. The crude drugs may contain calcium oxalate crystals, the amount of which varies depending on the environmental conditions. Acid Insoluble Ash value of Punarnava and Devadaru was above the standard values which denote the presence of earthy matter above the required limits in these samples.

The extractive values are useful for the assessment particularly when the constituents of the drugs can't be promptly evaluated by any other methods. It additionally demonstrates the nature of chemical constituents present in the drug as well as in the identification of adulterants. Water soluble and Alcohol soluble extractive values are its sub types.

Water soluble extractive value is applied for the drugs which contain water soluble constituents such as tannins, sugars, plant acids and mucilage. Water Soluble Extractive value of Erandamoola was below the Standard values.

Alcohol soluble extractive value is useful in the identification of alcohol soluble constituents of the drug such as tannins, resins and alkaloids. Alcohol Soluble Extractive value of Rasna and Erandamoola was less than the Standard limits which may be due to the environmental conditions during the time of growth and collection.

CONCLUSION

The result of the study suggests that the physico chemical analysis of the drugs is very essential for the authentication of the drug and quality control of raw drugs. The estimation of these parameters is highly essential for raw drugs or plant part used for the preparation of compound formulations. The periodic assessment is essential for quality assurance and safer use of herbal drugs. The result of the present study reveals that the selected sample drugs met the pharmacopeia standards in most of the criteria's of

assessment and therefore it can be safely and efficaciously used in the preparation of Rasna Saptaka Kashaya.

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