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Preparation of Pippalyadi Gutika Anjana and its standardization

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Abstract

There are many medicinal plants having medicinal properties in the traditional system and are also used extensively by the people of Assam. Pippalyadi Gutika Anjana is described in Bhaisajya Ratnavali Shalakyatantra is among one of specialities of Ashtanga Ayurveda which deals with diseases occurring above clavicle so it mainly deals with sense organs, the disease affecting them and their management [1]. Among these sense organ eyes are one. Acharya Sushruta described the 76 Netraroga with their symptom and treatment. So it is a very important plant formulation in the world of Ayurvedic medicine. Such traditionally used herbs Formulations are needed to be standardized for the proper use by the people and also for the establishment of a unique identification data among the common species [2]. Present study was carried out to get a standardised data of Pippalyadi Gutika Anjana. Even though the individual plant has gained scientific importance, there is a need of standardized data of the formulation. Hence, in the present work the Pippalyadi Gutika Anjana were subjected to various pharmacognostical and phytochemical evaluations. In the microscopical studies, the different cell structures and arrangements were studied and in physical evaluation the ash values and extractive values were studied. The various pharmacognostical constants were obtained which could help in the development of a suitable monograph for the formulation. These studies are important in the way of acceptability of herbal drugs in present scenario of lacking regulatory laws to control quality of herbal drugs.

Keywords: Ayurveda, kriyakalpa, netra, anjana

1. Introduction

There are mainly 7 kriyakalpas which includes Tarpan, Putapaka, Anjana, Aschyotana, Seka, Pindi, Bidalaka. The first 5 procedures were mentioned in Sushruta Samhita [1] and last two were prescribed in Sharangdhar Samhita [2] along with other 5 procedures. Netra anjana is one of the special treatment done in eye disorder. Anjana is procedure of applying medicine in the form of Gutika, Raskriya or Churna to the inner side of lower lid either by fingertip or by an applicator (Anjanashalaka). Kriyakalpa Anjana in addition to its benefits in curing eye diseases this particular procedure has daily application in order to protect eyes from various insults caused to eye due to daily exposure and for the maintenance of equilibrium of dos has inside eyes [3]. This it has special importance in healthy person as well as in diseases. To explain therapeutic procedure for eye disorders Acharya Sushruta explains separate chapter named kriyakalpa adhyay in Uttartantra of Sushruta Samhita. Kriyakalpa described in Ayurveda has its unique specialty. Anjana is one of the kriyakalpa described by Sushrut Acharya for various eye diseases. Anjana is topical application of medicinal paste to inner surface of fornix with help of anjanashalaka or finger from Kaninika Sandhi to Apanga Sandhi. Anjana Karma is economical for common man. It can be applied in healthy as well as diseased eye [4]. Pippalyadi Gutika Anjana is a combination of Lauh Churna, Saindhava Lavana, Pippali (*Piper longum*), Haritaki (*Terminalia chebula*), Vibheetaki (*Terminalia bellirica*), Amalaki (*Embllica officinalis*), Bhringaraj (*Eclipta alba*) and Draksha (*Vitis vinifera*) 1 part of each. The composition is as per the reference of B.R. 64/136,137).

2. Materials and Methods

All the herbs were collected from Guwahati and adjoining areas of Assam. The collected herbs were shade dried after keeping some in fixatives for microscopic studies and the dried material was stored for future use.

2. (a) Place of work

The dried samples were mixed and gutika was prepared at Assam Ayurvedic Products, Bamunimaidam, Guwahati, Assam. Pharmacognostic and phytochemical studies were carried out in State Drug Testing Laboratory, AYUSH, Govt. Ayurvedic College and Hospital, Ghy-14.



Fig 1: Pippalyadi Gutika Anjana

2.1 Pharmacognostic studies

Coarse powder (60 #) was used to study microscopical characters, physicochemical parameters and phytochemical investigation. For the powdered microscopical studies, slides were prepared and stained as per standard procedure [6]. The powder microscopy was performed according to the method of Khandelwal.

2.2 Macroscopic study

It refers to evaluation through organs of sense and includes the macroscopic appearance, color, odour, taste etc. of the drugs [11].

2.3 Microscopy study

The sample was treated with chloral hydrate solution and different staining reagents and chemicals were used to detect the lignified cells in the powder drugs [8]. The section was mounted on slides and studied under Trinocular Research Microscope.

2.4 Quantitative estimation

Different physicochemical properties like LOD, PH value, total ash, acid insoluble ash, extractive values of the seeds were determined using the methods described in the British Pharmacopoeia and Ayurvedic Pharmacopoeia.

2.5 Phytochemical Screening

The aqueous and methanolic extracts along with other solvent extracts of plant materials were studied for various phytochemicals like alkaloids, carbohydrates, flavonoids, glycosides, gums and mucilages, phenols, tannins, reducing sugars, saponins, steroids, tannins and terpenoids by using precipitation and coloration reactions [9].

2.6 Extraction

300 gm of powdered sample was extracted successively with solvents like petroleum ether, benzene, chloroform, acetone and methanol respectively in a Soxhlet apparatus [10]. Each solvent extract was then concentrated by distilling off the solvent under reduced pressure.

2.7 Thin layer chromatography

Thin layer chromatography was carried out with the methanolic extract and maximum spots been separated on precoated silica gel G TLC plate with trial and error methods.

2.8 Physicochemical properties

Physicochemical parameters were determined as per guidelines of WHO. Total ash value, loss on drying, water soluble ash, acid insoluble ash, solubility of the extract in different solvents, melting point, boiling point, pH, heavy metal analysis, petroleum ether soluble extractive, alcohol soluble extractive and water soluble extractive values were determined.

3. Result and Observation

The Pippalyadi Gutika Anjana was investigated in a systematic way covering pharmacognostical, phytochemical, and physicochemical aspects to rationalize its use as a drug of therapeutic importance.

3.1 Macroscopic characteristics

Table 1: Macroscopic characteristics of Pippalyadi Gutika Anjana

Organoleptic Evaluation	Colour	Black
	Odor	Pleasant
	Type	Gutika

Diagnostic characters of dried gutika of Pippalyadi Gutika Anjana under the Microscope were Powdered Microscopy shows presence of cork cells, spiral vessel, fragment of fibres, parenchyma cells, vascular bundle etc.

3.2 Determination of Quantitative standards

Table 2: Physicochemical analysis of Pippalyadi Gutika Anjana

Physico-Chemical Evaluation	LOD	14.25 % w/w
	Total Ash	8.40 % w/w
	Acid insoluble ash	2.12 % w/w
	Alcohol soluble extractive	32.30 % w/w
	Water soluble extractive	32.80 % w/w
pH	5.2	

3.3 Chromatographic Profile of Crude Extract of Pippalyadi Gutika Anjana extract



Fig 2: TLC in iodine vapour

Table 3: The details of solvent system and Rf. values of TLC

Extract	Solvent system	No. of spots	Rf. values
Ethanol	Toluene: n Hexane: acetic acid	4	0.11
			0.22
			0.28
			0.56

3.4 Phytochemical analysis

Table 4: Phytochemical screening of Pippalyadi Gutika Anjana

Phyto-Chemical Screening	Test for phytosterol	Absent
	Test for Alkaloids	Present
	Test for Glycosides	Present
	Test for Flavonoids	Present
	Test for Steroids	Absent
	Test for Tannins	Present
	Test for Terpenoids	Absent

4. Discussion

The standardization of a crude drug is an integral part for establishing its correct identity. Before any crude drug can be included in an herbal pharmacopoeia, pharmacognostic parameters and standards must be established. Microscopic method is one of the simplest and cheapest methods to start with for establishing the correct identity of the source materials. The physical constant evaluation of a drug is an important parameter in detecting adulteration or improper handling of drugs. The macroscopical characters can serve as diagnostic parameters. Ash values and extractive values are important in the evaluation of purity of drugs i.e, the presence or absence of foreign inorganic matter. Extractive values are also useful to evaluate the chemical constituents present in the crude drug and also help in estimation of specific constituents soluble in particular solvents. Phytochemical analysis of the drug showed presence of alkaloids, flavonoids, glycoside, tannins and terpenoids.

5. Conclusion

The ability to provide timely, accurate and reliable data is an essential part of discovery, development and manufacture of Pharmaceuticals. Here an attempt was made to get a standardized data of Pippalyadi Gutika Anjana. The pharmacognostical, phytochemical and physicochemical characters of Pippalyadi Gutika Anjana will be useful to generate standards to assess the quality and purity of the drug. The information provided by this study may be useful to carry out further study of Ayurvedic drugs of traditional medicinal practice of present era.

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