PREPARATION AND PHYTOCHEMICAL EVALUATION OF NAVAKARSHIKA KASHAYA AND IT’S GHANA

Y. Raghavendra1,*, Hiremath V. Kashavva2
1P.G. Scholar, P.G. Department of Kayachikitsa, KLEU’s Shri BMK Ayurveda Mahavidyalaya, PG Studies and Research Centre, Shahapur, Belgaum, Karnataka, India
2Reader, P.G. Department of Kayachikitsa, KLEU’s Shri BMK Ayurveda Mahavidyalaya, PG Studies and Research Centre, Shahapur, Belgaum, Karnataka, India

ABSTRACT

Medicinal herbs are the local heritage with global importance. They have curative properties due to presence of various complex chemical substances of different composition, which are found as plant secondary metabolites in one or more parts of these plants. Navakarshika Kashaya is one of such poly herbal preparation which is mainly indicated in Kushta, Vatarakta, Kapala kushta, Pana, Raktamandala etc. skin diseases. In spite of so many indications it is difficult to administer it in daily practice due to its astringent and bitter taste along with short shelf life. So here an attempt was made to prepare the Ghana from Kashaya without altering its therapeutic properties for the convenience of patients. The objective of this study was to prepare and carry out the phytochemical evaluation of Navakarshika Kashaya and its Ghana. Collection of the raw drugs, preparation of Kashaya and Ghana were done from GMP certified Pharmacy and subjected to TLC, physicochemical and phytochemical analysis from AYUSH approved Central Research Facility. Phytochemical constituents that are proteins, reducing sugars, mono saccharides, pentose sugars, glycosides, cardiac glycosides, saponin, flavonoids, and steroids were found in both forms. Kashaya showed three different Rf values in day light but it was absent in Ghana. In Short and long wavelengths both forms have same numbers but different Rf values. Ghana can be taken as alternative form of kashaya which is having a better shelf life, easy for packaging and convenient for dosing. 

Keywords: Navakarshika Kashaya, Ghana, Skin diseases.

INTRODUCTION

Drug is a substance or product that is intended to be used to modify or explore physiological systems or pathological states for the benefit of the recipient1. In Ayurveda, an ideal medicine is one which should be in less dosage form, possessing maximum therapeutic effects along with blending palatability2. Thus the greatest emphasis is given to the complete knowledge of drugs including identification, procurement, processing, preparation and application under a specialized branch of learning called ‘Bhaisajya Kalpana’. Kashaya (Decoction) preparations are the basic formulations which are effective in many conditions but the main drawback is dose (Pala 48 ml/day), nonpalatability3, tedious preparation methods4, cost effectiveness and shelf life of 1 yama (3 hours). Thus many techniques are adopted in today’s era where these decoctions are successfully converted into Ghana (Solid) form which is easy for packing, with same therapeutic effects, cost effectiveness, palatability and increased shelf life up to 1 year.5 Navakarshika Kashaya7 is a unique preparation explained under Vatarakta chikitsa which is also indicated in Kushta, Kapala kushta, Pana, Rakthamandala (skin disorders) along with suitable adjuvant and dosage. Due to its non-palatability and bitter taste most of the times this medicine is least prescribed. Hence in this study Navakarshika kashaya is converted into Navakarshika Ghana and Physicochemical and Phytochemical properties of both forms are evaluated to establish the standards for the same.

MATERIAL AND METHODS

The raw drugs were collected from GMP certified KLEU’s Ayurveda Pharmacy, Khasbag, Belgaum, India and were authenticated in AYUSH approved Central Research Facility, KLEU’s Shri B.M.K Ayurveda Mahavidyalaya, Belgaum, India.

Navakarshika Kashaya Ingredients

Navakarshika Kashaya7 mainly contains nine drugs; they are Amalaki (Emblica officinalis Linn; CRF/12/580), Bibhitaki (Terminalia bellirrica Roxb; CRF/12/581), Haritaki (Terminalia chebula Retz; CRF/12/582), Nimba (Azadirachta indica A. Juss.; CRF/12/583), Manshista (Rubia cordifolia Linn; CRF/12/584), Vacha (Acorus calamus Linn; CRF/12/585), Katurohini (Picrorhiza kurroa Royle ex Benth; CRF/12/586), Guduchi (Tinospora cordifolia). Willd. Miers; CRF/12/587), Daruwaridra (Berberis aristata D C; CRF/12/588) taken in equal quantity.

Method of Preparation of Kashaya

Kashaya (Decoction) was prepared using 1 part of Navakarshika kashaya (course powder) bharad (18 kg) and 16 parts of water (288 liters) was added and boiled on medium flame (95-105°C) till it gets reduced to 1/4th part (72 liters) as per the classical reference (Figure-4). Then Kashaya (Decoction) was filtered and stored in a clean vessel.
Preparation of Ghana
Navakarshika kashaya (71.5 liter) was heated on medium flame till water portion was evaporated. The residue was scraped well, collected and kept in drier at the temperature of 40°C for 2 hours every day for 15 days for complete drying. Later this was powdered (2 kg) into finest form (Figure-5). Obtained Ghana was filled in capsules (500 mg/cap) and preserved in a sterile container.

Analytical study
Kashaya and its Ghana were subjected for organoleptic, TLC, physicochemical, phytochemical analysis as per the standards of Ayurvedic pharmacopoeia of India in AyUSH approved Central Research Faculty, KLEU’s Shri B.M.K Ayurveda Mahavidyalaya, Belgaum, India.

RESULTS
Organoleptical Characters
Kashaya was having brownish color with a heavy bitter taste and characteristic odor of the ingredients like Manjishta, Katuki, Vacha and Daruvaridra. Ghana had faint characteristic odor of drugs, slightly sticky consistency, brownish black color, slight bitter taste which was comparatively milder than Kashaya.

Physico-chemical properties
Kashaya showed Specific Gravity-0.982, Total Solids-5.956%, Weight of total solids in ml - 0.894 and pH - 3.53. Ghana showed Total Ash value - 7.5 %, Acid Insoluble Ash value - 4.5 %, Alcohol soluble extractive - 37.6 % and Water soluble extractive - 91.2 %.

Preliminary Phytochemical Parameters
Kashaya and Ghana samples were subjected for phytochemical screening which are tabulated in the Table 1.

Thin Layer chromatography
TLC studies of both forms were carried out using same solvent system of ethyl acetate: methanol: water (100:16.5:1.35) and the results are given in Table 2. (Figure 1, 2 & 3)

DISCUSSION
Navakarshika Kashaya is polyherbal preparation with drugs having bitter and astringent properties because of which patient complaints nausea and vomiting soon after its consumption. So conversion of Kashaya into such a form is necessary which will not only help to reduce its dose but also increase its palatability and has a better shelf life. It also become convenient for packaging. Hence Kashaya was converted into Ghana form. Organoleptical characters, phytochemical, physicochemical and TLC were evaluated as a primitive step to analyze the Navakarshika kashaya and it’s Ghana. Organoleptic characters of the Kashaya and Ghana showed bitterness with a characteristic odor having brownish black color this was may be due to the combination of Guduchi, Katuki, Nimba, Daruvaridra, and Triphala. Ghana was slightly sticky in nature which may be due to the gum and resinous matter of Daruvaridra and Nimba. The advantage of Ghana is that it can be easily filled into capsules thus masking the bitter taste and odor of kashaya. Phytochemical characters such as proteins, reducing sugars, monosaccharide’s, pentose sugars, glycosides, cardiac glycosides, saponin, flavonoid and steroids were found both in Kashaya as well as Ghana. Hence Ghana can be taken as alternative form for Kashaya.
Figure 1: TLC of Navakarshika Kashaya and its Ghana in Day light

Figure 2: TLC of Navakarshika Kashaya and its Ghana in short wavelength

Figure 3: TLC of Navakarshika Kashaya and its Ghana in Long wavelength

Figure 4: Preparation of Kashaya

Figure 5: Prepared Kashaya Ghana
Thin Layer Chromatography of Kashaya showed three different Rf values in day light but it was absent in Ghana because all the three constituents might not be thermolabile and lost during drying process. In Short and long wavelengths both forms have same numbers but different Rf values. The difference in Rf values may be due to change of structures or new bond formation or bond breakage of components due to loss of water and prolonged exposure to heat and also may be due to limitation of solvent which might have not shown all other constituents in the TLC plate.

CONCLUSION
In the present study, assessment of physicochemical, phytochemical parameters of Navakarshika kashaya and Navakarshika Ghana didn’t show much change. Hence Ghana can be taken as an alternative effective substitute for the Navakarshika kashaya.

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