



ARTICULATION AND ASSESSMENT OF KASHAYA FOR ARSHA

Ramakrishna S.^{1*}, Dhanush S. R.², Vindyashree L.², Lavanya M. B.², Omkar S.² and Darshini C. S.²

¹Asst Professor, Dept of Pharmacognosy, Sree Siddaganga College of Pharmacy, Tumakuru.

²UG Scholar, Dept of pharmacognosy, Sree Siddaganga College of Pharmacy, Tumakuru.

***Corresponding Author: Ramakrishna S.**

Asst Professor, Dept of Pharmacognosy, Sree Siddaganga College of Pharmacy, Tumakuru.

Article Received on 08/08/2022

Article Revised on 28/08/2022

Article Accepted on 18/09/2022

ABSTRACTS

Arsha is a common affliction which has been described and treated since the beginning of human civilization. Hemorrhoid cushions are a part of normal anatomy but become pathological when swollen or inflamed. Although surgery is an effective treatment of hemorrhoids, it is reserved for advanced disease and it can be associated with appreciable complications. Meanwhile, non-operative treatments are not fully effective, in particular those of topical or pharmacological approach. Hence, improvements in our understanding of the development of novel and innovative methods for the treatment of hemorrhoids. *Ayurveda* provides a cure and prevents recurrences. The modern lifestyle which includes taking junk, spicy and nonfibrous food with sedentary habits gives more incidences of piles. Traditional medicine practitioners are using a combination of leaf powders of Radish and Papaya for curing the above disorder. Hence an attempt was made to formulate the kashayam by using the above leaf powders for the prevention of recurrence of the *Arsha*.

KEYWORDS: *Arsha, Kashaya, Raphanus Sativus, Carica papaya.*

INTRODUCTION

Kashayam also khashaya is widely used dosage form of ayurveda. Khashayam refers to water decoction or water extract of a herb or group of herbs.^[1]

It can be used as one of the home remedy for ailments like indigestion, cough, common cold etc. It is an ancient form of medicine that has been used for long time. Based on the group of the herbs used, the product (Khashaya) name, it may taste like bitter and liquid is dark in colour.^[2]

Radish is a very common vegetable cultivated all around the world belonging to the family cruciferae. It can be eaten cooked as well as raw and offers effective and safe home remedies for treating piles. Number of people around the world suffer from piles, fissure and fistula problem. Radish can be used as effective and safe home remedy for treating piles. Piles is a condition in which hemorrhoids or inflamed. Hemorrhoids are the masses clumps, cushion of tissue in the anal. These are full of blood vessels, support tissue, muscle and elastic fibers. Piles can be internal or external, bleeding or non bleeding. The inner hemorrhoids cannot be seen or felt unless they are acute. Outer hemorrhoids can be seen outside the anus. External hemorrhoids are called perianal hematoma. Piles Occur due to low fiber diet, ageing, chronic constipation, lifting heavy weight,

pregnancy or straining when passing a stool. There are lot of home remedy that can be used in treating piles, radish is one of the easily available vegetable that can be used as a remedy in treating piles.^[3]

Carica papaya Linn from the *Caricaceae* family is commonly grown in India has been used for its medicinal properties around the world papaya possess excellent antioxidant activity and prevent pathogenesis. Papaya leaves has been used for remedies against various ailments such as asthma, fever, colica, beriberi and jaundice.^[4]

Papaya Contains enzymes papain & chymopapain both have shown to aid digestion, prevent constipation and clean the colon. It's high anti-inflammatory property reduces inflammation of stomach and colon. Cumin is a seed Species belongs to *umbelliferae* family and is used in food flavoring and perfumery. Water extract of cumin is reported to possess many nutraceutical properties like anti-allergic, anti-oxidant, anti-platelet aggregation and hypoglycemic. So cumin can be a good source of nutraceutical and also have a benefit of flavorant.^[5]

MATERIALS AND METHODS

Herbal ingredients profile

Description profile

1. *Raphanus sativus* L. (radish) Leaves



Biological source:- Leaves of *Raphanus sativus*.L.

Family:- *Cruciferae* or *Brassicaceae*.

Kingdom:- *Plantae*.

Description:- The leaves of *Raphanus sativus*. L are simple and linear, basal leaves are long, pinnate, coarsely

toothed, lyrate, upper leaves shorter, petio; ate, uppermost simple, sublinear, all roughly pilose bright green in colour.^[6]

Active constituents^{[7],[8]}

Alkaloids	Phenethylamine, Pyrrolidine, 1-(2-pyrrolidinethiol-3-yl)-1,2,3,4-tetrahydro- β -carboline-3-carboxylic acid.
Enzymes	Anionic peroxidase; A1, A2, A3, A4, Arabino galactan protein, catalase, glutathione derivatives, β -fructosidase(β -F), Superoxide dimutase.
Organic Acids	Caffeic acid, p-coumaric acid, Erucic acid, Erythroic acid, Ferulic acid, Gentisic acid, Hydrocinnamic acid, p-hydroxy benzoic acid, Salicylic acid, Vanillic acid, Linoleic acid, Linolenic acid, Malic acid, Melanoic acid, Oxalic and Palmitic acid.
Phenolic compounds	Cyanidins, Isorhamnetin-7-O-rhamnoside, Kaempferol. Gallic acid, Procatechuic acid, p-hydroxy benzoic acid, Chlorogeic acid, Sinapic acid, 2-methoxy-4-methylphenol.
Polysaccharides	Pectic substance, Rhamnose, Glucose, Xylose.
Proteins	Arabinogalactan Proteins(AGPs), L-arabino-D-galactan, S-glycoproteins, Arabino-3-6-galactan, Polypeptides RCA1, RCA2, RCA3, Ferredoxin isoprotein,

Health benefits of radish leaf

1. Anticancer
2. Radish leaves prevents Diabetes.
3. Treatment of Piles.
4. Treatment of Jaundice.
5. Treatment of Respiratory Disorders
6. Treatment of Urinary Disorders.
7. Radish leaves are naturally diuretic
8. Antiscorbutic.
9. Increase immunity & reduce fatigue.
10. Helps in Digestive Process.
11. Antibacterial and Antifungal.
12. Antiinflammatory.

2. *Carica papaya* leaves



Biological source:- Leaves of *Carica papaya*

Family:- *Caricaceae*.

Kingdom:- *Plantae*.

Description:- The papaya is a large, tree-like plant, with a single stem growing from 5 to 10 m (16 to 33 ft) tall, with spirally arranged leaves confined to the top of the trunk. The lower trunk is conspicuously scarred where

leaves and fruits were borne. The leaves of papaya are large, 50–70 cm, deeply palmately lobed, with seven lobes. Unusually for such large plants, the trees are dioecious. The tree is usually unbranched, unless lopped. The flowers appear on the axils of the leaves, maturing into large fruit, 15–45 cm long and 10–30 cm in diameter.^[9]

Active constituents^{[10],[11],[12],[13]}

Alkaloids	Carpaine, pseudocarpaine, Carpinine, Anthroquinone, Saponins.
Proteolytic enzymes	Papain, quimiopapain.
Minerals	Ca, K, Mg, Zn, Mn, Fe
Organic pigment	Lycopene
Phenolic compound	Caffeic acid, ferulic acid, Dimethoxycoumarin, protocatechuic acid, chlorogenic acid.
Glycosides	Luteolin 7, Carposide, tannins.
Vitamins	Vit A, Vit B and especially Vit B12.
Cyclic Ketoester	Hexahydro-1- α -4-naphtho[1,8,a-b] oxiren-2(3,4)-one
Alkene alcohol	3,7-dimethyloct-7-en-ol.
Fatty acid ester	Cyclopentaneundecanoic acid
Amide	9-octadecenamide.

Health benefits of papaya leaf^[14]

1. Papaya leaves are used to treat symptoms related to dengue fever.
2. Promote balanced blood sugar.
3. Support to the digestive function.
4. Anti inflammatory property.
5. Support to the hair growth.
6. Promote healthy skin.
7. Anticancer Property.
8. Treatment of Diabetes.
9. Prevent the heart burns.

3. Cumin seeds



Biological source:- *Cuminum cyminum L.*

Family:- *Apiaceae*.

Kingdom:- *Plantae*.

Description:- The cumin, or comino, “seeds” are actually dry fruits known as schizocarps. They are thin yellowish brown elongated ovals about 6 mm (0.25 inch)

long. Each features five prominent longitudinal dorsal ridges interspersed with less-distinctive secondary ridges forming a tiny gridlike pattern. They contain between 2.5 and 4.5 percent essential oil, the principal component of which is cumaldehyde.^{[15],[16]}

Active constituents^[17]

Vitamins	Vitamin A, B
Dietary minerals	Iron, magnesium, calcium
Volatile components	Cuminaldehyde, Cymene, Terpinoids
Substituted Pyrazines	2-ethoxy-3-isopropyl pyrazine, 2-methoxy-3-sec-butylpyrazine, 2-methoxy-3-methylpyrazine
Others	Gamma terpinene, safranal, P-cymene, beta-pinene

Health benefits of cumin seeds

1. Acute gastritis.
2. Anti diabetes effects.
3. Digestive stimulant action.
4. Neuroprotective.
5. Anti inflammatory.
6. Anti oxidant.
7. Cardioprotective.
8. Piles.
9. Flavouring agent.
10. Chronic Diarrhoea
11. Dyspepsia.

Procedure**Preparation of kashayam**

1. Radish leaves were taken, air dried for 5 days then dried in oven at 60°C for one hour. Then it was

powdered and 20 gram powder was weighed and taken.

2. Papaya leaves were taken air dried for 2 days then dried in oven at 60°C for one hour. Then it was powdered and 20 gram powder was weighed and taken.
3. Cumin seeds were taken and powdered them by grinding. Cumin powder of 2.5 grams was weighed and taken.
4. Stainless steel container was taken and filled with one litre of drinking water, and all the weighed quantities of powders are added slowly by stirring and boil it until the 1000ml water reduced to its 1/4th quantity and cooled.
5. Filter the solution by using muslin cloth and filtrate (Kashayam) was collected in glass bottle.

Formulation of kashayam**Table 1**

Sl. No	Ingradients	Quantity
1	Raphanus sativus. L (Radish) leaves powder	20g
2	Carica papaya (Papaya) leaves powder	20g
3	Cumin Seeds powder	2.5g
4	Drinking Water	1000ml

Standardisation of kashayam^[18]**I. Organoleptic evaluation**

The Kashayam was evaluated for various physicochemical parameters such as physical appearance like (colour, odour, taste).

a) Color examination

Five ml Kashayam was taken into watch glasses and placed against white back ground in front of white tube light. It was observed for its color by naked eye.

b) Odour examination

Two ml of Kashayam was smelled individually. The time interval among two smelling was kept 2 minutes to nullify the effect of previous smelling.

c) Taste examination

A pinch of Kashayam was taken and examined for its taste on taste buds of the tongue.

II. Physicochemical analysis**a) Determination of P^H**

Digital p H meter were standardized with standard pH solutions. Then the electrodes are cleaned with fine tissue paper and it is then dipped into a beaker containing 10 ml Raphanus sativus.L leaf kashayam suspended in 100 ml of water. The readings were noted.

b) Determination of Total Dissolved Solids [TDS]

10 ml of the sample was evaporated in calibrated Petri dish. The residue is then dried for 1 hr in an oven at 180±2°C, Cooled and the dish is weighed.

c) Determination of Moisture Content [Loss on drying]

10 ml of the sample was taken in a tarred china dish. Dried in the oven at 180°C, and then cooled in a desiccator and watch. After that the loss was recorded as moisture. Continue the drying and weighing at one hour

interval until difference between two successive weighing to not more than 0.25 percentage. The percentage difference between the china dish containing the test sample before and after the experiment is calculated as the percentage of moisture content.

d) Determination of Total ash

Incinerate about 2-4ml of the sample in a tarred crucible (usually of platinum or silica) heated at 450°C for removal of carbon atom (it becomes white), cool and determine the weight of the product. Estimate the percentage of ash with blank air dried crucible.

e) Determination of acid insoluble ash

It is the amount of ash which is insoluble in dilute hydrochloric acid. The ash obtained in the total ash was boiled with 25 ml of 2N hydrochloric acid for 5 minutes. The insoluble ash was collected on an ash less filter paper and washed with hot water. The insoluble ash along with the filter paper was transferred into silica crucible. It was ignited and weighed. The percentage of acid insoluble ash value was calculated with reference to air-dried drug.

f) Determination of water soluble ash

The water soluble ash value is used to detect the presence of material exhausted by water. The ash obtained in the total ash was boiled with 25 ml of water for 5 minutes. The insoluble ash was collected and transferred into silica crucible, ignited for 15 minutes and weighed. The weight of the soluble matter was subtracted from the weight of total ash. The difference of weight was considered as water soluble ash. The percentage of water soluble ash value is calculated with reference to air-dried drug.

g) Extractive values

The percentage of extracts obtained from the drug(s) with the help of various solvents are called extractive values.

h) Determination of alcohol soluble extractive value

5 ml of Kashayam is macerated with 100 ml of alcohol in a closed flask for 24 hours (shaking frequently during first 6 hours and allowed to stand for 18 hours). Filter the extract, 25 ml of the filtrate is evaporated to dryness in a tarred flat bottomed shallow dish and weighed. The percentage of alcohol soluble extractive value was calculated with reference to air-dried sample.

i) Determination of water soluble extractive value

Add 5 ml of the kashayam with 100ml of water in an air tight closed container for one day, shaking repeatedly for 6 hour and keeping motionless for 18 hrs, Filter the solvent after the above process, allowed to evaporate the 25ml of the filtrate at 105°C to form dry product. Calculate the percentage of alcohol-soluble extractive value with reference to air-dried sample.

j) Determination of viscosity

Ostwald viscometer was used to determine the viscosity of Kashayam, was followed as per the standard procedure.

k) Determination of density

Determine the density of Kashayam, was followed as per the standard procedure.

III. Phytochemical screening**a) Detection of Alkaloids****a. Dragondroff's test**

Take 1ml of Kashayam in a clean test tube, add dragondroff's reagent. Red color precipitate indicates presence of alkaloids.

b. Hager's test

Take 1ml of Kashayam in a clean test tube, add hager's reagent. Yellow color precipitate indicates the presence of alkaloids.

c. Wagner's test

Take 1ml of Kashayam in a clean tube, add wagner's reagent. Red color precipitate indicates the presence of alkaloids.

d. Mayers test

Take 1ml of Kashayam in a clean tube, add wagner's reagent. cream colour precipitate indicates the presence of alkaloids.

b) Test for steriods

Take 1ml of kashayam in a clean test tube, add few drops of chloroform and equal amount of conc.sulfuric acid. Appearance of blue colour indicates the presence of steriods.

c) Test for flavonoids

Small amount of Kashayam is mixed with 5% fecl₃ (ferric chloride) solution. Green or purple precipitate indicates the presence of flavonoids.

d) Tests for Tannins and phenolic compounds

a. Take 1ml of kashayam in a clean test tubes,add Ferric chloride Appearance of bluish black colour indicates the presence of tannins and phenolic compounds.

b. Take 1ml of kashayam in a clean test tube, add lead acetate Appearance of bluish yellow precipitate indicates the presence of tannins and phenolic compounds.

c. Take 1ml of kashayam in a clean test tube, add potassium chromate solution Appearance of orange yellow precipitate Indicates the presence of tannins and phenolic compounds.

e) Tests for Proteins and Amino acids**a. Millons test**

Take 1ml of kashayam in a clean test tube, add millons reagent. Appearance of yellowish to red precipitate indicates the presence of Proteins and Amino Acids.

b. Xanthoproteic test

Take 1ml of kashayam in a clean test tube,add ethanol and conc. Nitric acid Appearance of yellow colour indicates the presence of proteins and Amino Acids.

f) Tests for carbohydrates**a. Molisch test**

Take 1ml of kashayam in a clean test tube, add molisch reagent Appearance of violet colour ring at the junction of the test tube Indicates the presence of Carbohydrates.

b. Fehlings test

Take 1ml of kashayam in a clean test tube,add Fehlings reagent Appearance of green colour indicates the presence of Carbohydrates.

g) Tests for Glycosides**a. Borntrager's test**

Take 1ml of kashayam in a clean test tube and dissolve in 1ml of benzene and add dil. Ammonia to the sample add Hydrochloric acid heat and filter. Rose pink to red colour is not obtained indicates the absence of Glycosides.

b. Keller-Kiliani test

Take 1ml of kashayam in a clean test tube and treated with glacial acetic acid shake well, add a trace amount of Ferric chloride solution and conc. Sulfuric acid, Absence of blue colour in acetic acid layer and absence of red colour at junction of 2 liquids indicates the absence of Glycosides.

c. Legal test

Take 1ml of kashayam in a clean test tube and water make it alkaline add few drops of sod. Nitro pruside, no blue. Colour formation indicates the absence of Glycosides.

h) Tests for saponins

Take 1ml of kashayam in a clean test tube, add 20ml of distilled water shake well. Formation of foam indicates the presence of saponins.

RESULT AND DISCUSSION^[18]

The Ayurvedic Formulation of Kashayam

Table 2: Observed Oranoleptic evaluation reports of kashaya formulation.

Sl. No.	Parameters	Kashayam
1.	Colour	Brownish green.
2.	Odour	Aggrable odour
3.	Taste	Slightly Bitter

Table 3: Observed Physicochemical evaluation reports of Kashaya formulation.

Sl. No.	Parameters	Kashayam
1.	pH	6.25
2.	Total Dissolved Solids	0.959g/ml
3.	Loss On Drying [LOD]	92.4%
4.	Total Ash	0.28%
5.	Acid insoluble ash	8.2%w/v
6.	Water soluble ash	1.65%w/v
7.	Alcohol soluble extractive value	0.8%w/v
8.	Water soluble extractive value	1.44%w/v
9.	Viscosity	7.7150 millipose
10.	Density	1.01163g/ml

Phytochemical screening^[18]

The Kashayam was subjected to qualitative chemical analysis for identification of various plant constituents like alkaloids, steroids, tannins and phenolic compounds,

flavonoids, proteins and aminoacids, carbohydrates, glycosides, saponins. The result was tabulated in followed table 4.

Table 4:- Observed phytochemical screening reports of kashaya formulation.

Sl. No.	Phytoconstituents	Kashayam
1	Alkaloids	+ve = Present
2	Steroids	+ve = Present
3	Flavonoids	+ve = Present
4	Tannins and Phenols	+ve = Present
5	Protein and Amino acids	+ve = Present
6	Carbohydrates	+ve = Present
7	Glycosides	-ve= Absent
8	Saponins	+ve = Present

CONCLUSION

This amazing traditional kashaya enriched with a quarry of Natural Herbal Components has umpteen health benefits. Kashaya is formulated traditionally which is mentioned in Indian Ayurvedic Text and analysed. Traditional (or) Conventional method of medication like Ayurveda has outstanding role for expansion of alternative & effective medicine. Traditional Ayurvedic formulation, kashaya as the study was conducted only in limited set of conditions, the results must be evaluated in a large population to prove its efficacy. Kashaya is effective in treatment of piles. The formulated kashaya evaluated parameters were within the standard limits.

BIBLIOGRAPHY

1. anonymous. <https://en.m.wikipedia.org/wiki/Kashayam1>.
2. Kashayam-herbal Teas preparation, usage. anonymous. <https://www.easyayurveda.com/2011/12/15/what-is-kashayam-how-to-make-kashayam/>
3. Anupama, 2014, How, to, use, radish, to, treat, piles anonymous.
4. Surya P Singh et al 2020, Therapeutic application of caricapapaya leaf extract in the management of human decises, DARU journal of pharmaceutical sciences, 2020; 28: 735-744 (735,736).
5. H.B Sowbhagya critical reviews in food science and Nutrition and chemistry technology and nutraceutical function of cumin (Cuminum Cyminum L), Orient Longman, Indian Medicinal plants, 2012; 53: 4 - 400.
6. Rosa Martha P G, R S P, Raphanus sativus (Radish) Their Chemistry and Biology, The Scientific World Journal, 2004; 824 - 837.
7. Magda Gamba, Eralda A, Peter F R , Marija, Oscar H F, Beatrice M, Weston B, Brandon M, Hua K, Taulant M, Nutritional and Phytochemical characterization of radish(Raphanus sativus); A systematic review, Trends in Food Science & Technology, 2021; 210-212.
8. Papaya Wikipedia. anonymous, <http://en.m.wikipedia.org>
9. N Wamara J U, Adesanmi R A, Arogwa T J, 2019, Nutrient Composition of Carica Papaya leaves <https://www.bimbima.com/ayurveda/how-to-use-radish-to-treat-piles/626/>.

- extract, Food Science Nutrition Research, 2019; 275.
10. O U Igwe, Chemical constituents of essential oil of Carica Papaya from South East Nigeria, International Journal Of Research In Pharmacy and Chemistry, 2015; 5(1).
 11. Isolation and Characterization of Secondary Metabolites from leaves of Carica Papaya Linn. anonymous, <https://www.slideshare.net/gauravgautam41/carica-papaya-linn>.
 12. Phytochemical constituents present in caricapapaya. Linn. anonymous. <https://images.app.goo.gl/ggQyRkqDZ7nC6Ch69>.
 13. Emerging Benefits and Uses of Papaya leaf – Healthline.
 14. anonymous, <https://en.m.wikipedia.org/wiki/cumin>.
 15. anonymous, <https://www.britannica.com/plant/cumin>.
 16. KrishnapuraSrinivasan, Cumin (Cuminum cyminum) and black cumin (Nigella sativa) seeds: traditional uses, chemical constituents, and nutraceutical effects, Food Quality and Safty, 2017; 1-5.
 17. Abdul azeez, Faisal M A A, Tomy, R Suresh, Benito J, Pharmacognostic and Phytochemical Evaluation of Polyherbal Formulation Kathakakhadiradi Kashyam, International Journal of Pharmaceutical Sciences Review and Research, 2016; 96-100