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VARNADI KASHAYAM: A REVIEW OF AN ANCIENT AYURVEDIC POLYHERBAL FORMULATION

DASH S*, SAHOO AC, SAHOO PK, SAHOO M, SENAPATI AK, NANDA BK AND SABARNI S

Institute of pharmacy & Technology, Salipur, Cuttack, Odisha-754202, India

***Corresponding Author: Dr. Sujit Dash: E Mail: discoversujit@gmail.com**

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ABSTRACT

Varnadi Kashayam is a renowned polyherbal Ayurvedic decoction that has been used for centuries in traditional Indian medicine. This meticulously prepared formulation combines 16 potent herbs, including Haritaki, Bibhitaki, Amalaki, Guduchi, and Neem, known for their therapeutic properties. The origins of Varnadi Kashayam can be traced back to ancient Ayurvedic texts, such as the "Ashtanga Hridayam" by Vagbhata in the 7th century CE. Over the centuries, various Ayurvedic scholars and practitioners, known as Acharyas, have studied, refined, and documented its preparation and applications. Notable contributors include Acharya Chakrapani Datta, Acharya Govinda Dasji, and Acharya Sharangadhara. Recent research has explored the potential mechanisms of action and therapeutic effects of Varnadi Kashayam. Studies have shown its anti-inflammatory properties, ability to inhibit pancreatic lipase activity, and anti-obesity effects in high-fat diet-induced obese rats. Analytical specifications, including organoleptic properties, physicochemical parameters, qualitative and quantitative tests, microbial limits, heavy metal limits, and chromatographic fingerprinting, have been established to ensure quality control and standardization. Varnadi Kashayam is traditionally used for various conditions, including skin disorders, digestive ailments, liver disorders, and metabolic imbalances. Its unique blend of herbs is believed to support the body's natural detoxification processes, promote healthy digestion, and enhance overall vitality and radiance. With renewed interest in traditional and complementary medicine, Varnadi Kashayam has gained attention for scientific validation and exploration of its therapeutic potential.

Keywords: Varnadi Kashayam, Polyherbal, Ayurvedic formulation, Ingredients, Preparation, analytical specifications

INTRODUCTION

Varnadi Kashayam is a renowned polyherbal Ayurvedic formulation that has been used for centuries in traditional Indian medicine. This decoction is meticulously prepared by combining various herbs known for their potent therapeutic properties. Varnadi Kashayam is an ancient Ayurvedic herbal decoction that has been used for centuries to treat a variety of health conditions. This potent formulation combines the therapeutic properties of several herbs, including Varuna (*Crataeva nurvala*), Punarnava (*Boerhavia diffusa*), Gokshura (*Tribulus terrestris*), Shilajit other ingredients. Together, these ingredients work to support kidney and urinary tract health, promote the elimination of toxins and stones, and maintain overall urinary system function **[1]**.

MATERIALS AND METHODS

A thorough search of scientific databases, including PubMed, Google Scholar, and Ayurvedic journals, was conducted using keywords such as Varanadi Kashayam, anti-inflammatory effect, obesity, atherosclerosis, and chronic inflammatory diseases. The search was limited to studies published in English and included both in vitro and in vivo experiments, as well as clinical trials. Studies were selected based on their relevance to the topic, study design, and the quality of the research. The studies were evaluated for their methodology, sample size, and the outcome measures used. Only studies that met the inclusion criteria were included in the review.

History of Varnadi kashayam

Varnadi Kashayam has a rich historical legacy in Ayurvedic medicine, with its origins tracing back to ancient texts and scholarly works. The earliest known mention of Varnadi Kashayam can be found in the classical Ayurvedic text Ashtanga Hridayam, written by the renowned Ayurvedic scholar Vagbhata in the 7th century CE. This text is considered one of the three great treatises of Ayurveda, along with the Charaka Samhita and the Sushruta Samhita. Over the centuries, various Ayurvedic scholars and practitioners, known as Acharyas, have studied, refined, and documented the preparation and therapeutic applications of VarnadiKasayam. Acharya Chakrapani Datta (11th century CE): In his work "Chakradatta," he described the formulation and its use in treating skin disorders, digestive ailments, and liver diseases. Acharya Govinda Dasji (16th century CE): In his treatise Bhaishajya Ratnavali, he detailed the ingredients and methods for preparing VarnadiKasayam, emphasizing its rejuvenating and complexion-enhancing properties. Acharya Sharangadhara

(14th century CE): In his work Sharangadhara Samhita, he highlighted the use of Varnadi Kashayam for promoting longevity and overall well-being. Varnadi Kashayam has been an integral part of traditional Ayurvedic practices passed down through generations of Ayurvedic practitioners and families. Its preparation and administration have been refined over time through practical experience and empirical observations. With the growing interest in traditional and complementary medicine, Varnadi Kashayam has gained renewed attention in recent decades. Many Ayurvedic institutions and modern practitioners have revived the study and promotion of this formulation, conducting research to validate its traditional claims and explore its potential therapeutic applications **[2-6]**.

Drug profile

Kashayam or Kwath along with Kashaya be a characteristic kind of ayurvedic oral liquid formulation prepared through boiling herbal ingredients into water. Water and herbal ingredients are most important ingredients of these types of formulations. However, herbal ingredients can be vary according to the purpose of utilize with beneficial indication. The aforesaid formulation includes mainly aqueous extract of approved herbal ingredients with extremely useful intended for provided that rapid help during a good number of diseases as per Ayurveda **[7]**.

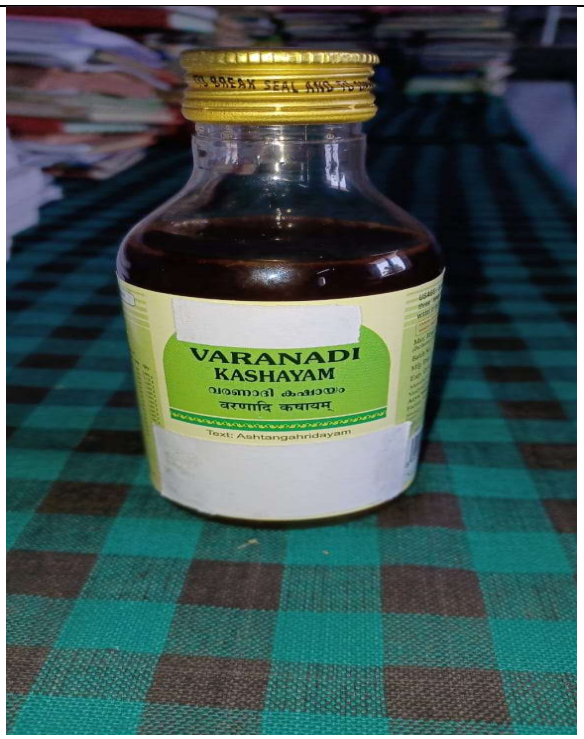

Figure 1: Marketed Varanadi Kashayam

Varanadi Kashayam Ingredients

Varanadi Kashayam is an Ayurvedic polyherbal decoction containing 16 ingredients, for Various Mechanisms of action. The Varanadi Kashayam contains the following ingredients, their phytoconstituents and pharmacological activities are cited in **[8, 9]**.

Table 1: The ingredients of Varanadi Kashayam, their phytoconstituents, and pharmacological activities:

Ingredient	Phytoconstituents	Pharmacological Activities
Varuna *(Crataeva magna)*	**Betulinic acid, catechins, sterols, cadabicine (alkaloid)**	**Treats kidney stones, prostatic enlargement, bladder disorders, inflammation; appetite stimulant and digestive aid.**
Shatavari *(Asparagus racemosus)*	**Shatavarins (steroidal saponins)**	**Antiulcer, antioxidant, antidiarrheal, antidiabetic, immunomodulatory, fertility-enhancing; rejuvenating tonic.**
Chitrak *(Plumbago zeylanica)*	**Plumbagin, naphthoquinones, coumarins**	**Treats skin diseases, inflammation, diabetes, cancer, hyperlipidemia; hepatoprotective, antimicrobial.**
Sairyaka *(Barleria strigosa)*	**β-sitosterol**	**Antioxidant, antimicrobial, anti-inflammatory, anticancer, antidiabetic.**
Moorva *(Chonemorpha fragrans)*	**Alkaloids (japindine, chonemorphine)**	**Antidiabetic, antihyperglycemic, antihyperlipidemic.**
Vilwa/Bael *(Aegle marmelos)*	**Coumarins (marmin), alkaloids (skimmianine)**	**Treats inflammation, diarrhea, dysentery, ulcers, respiratory disorders, cancer; antioxidant.**
Kiramar/Vishanika *(Aristolochia bracteolate)*	**Aristolochic acids, coumarins, alkaloids**	**Treats malaria, arthritis, hypertension, allergies, inflammation, diabetes, hyperlipidemia; antioxidant, antimicrobial.**
Brihati *(Solanum melongena)*	**Steroids, steroidal alkaloids, coumarins, amides**	**Antioxidant, anti-inflammatory, antimicrobial; treats dysentery, fever, digestive problems, arthritis.**
Nidigdhika *(Solanum surattense)*	**Steroidal compounds, alkaloids, coumarins**	**Antibacterial, antifungal, antioxidant, antidepressant, larvicidal; treats hernia.**
Karanja *(Pongamia pinnata)*	**Flavonoids, furano flavonoids**	**Cardioprotective, neuroprotective, anti-inflammatory, antihyperglycemic.**
Pootikaranja *(Holoptelia integrifolia)*	**Sterols, triterpenes, naphthalene derivatives, fatty alcohols**	**Anti-inflammatory, anthelmintic, laxative, digestive aid.**
Jaya *(Premna corymbosa)*	**Alkaloids, steroids, flavonoids, phenols**	**Treats asthma, bronchitis, fever, cough, diabetes.**
Hareethi *(Terminalia chebula)*	**Tannins, phenolics, carbohydrates**	**Antioxidant, antimicrobial, anticonvulsant, antidiabetic, hepatoprotective, anti-inflammatory.**
Sahijan/Bahalapallaa *(Moringa oleifera)*	**Glucosinolates, isothiocyanates**	**Analgesic, anti-inflammatory, antipyretic, diuretic, anticonvulsant.**
Kush/Darbha *(Desmostachya bipinnata)*	**Coumarins, flavonoids, sterols, fatty alcohols**	**Antimicrobial, antioxidant, anticancer, hypolipidemic, anti-inflammatory, antidiabetic.**
Agnimukh/Rujakara *(Semecarpus anacardium)*	**Anacardic acids, vitamins, amino acids**	**Antiatherogenic, anti-inflammatory, antioxidant, antimicrobial, hypoglycemic, hair growth promoting.**

Preparation

The herbs (haritaki, bibhitaki, amalaki, guduchi, and neem, etc.) have been gently roasted separately on a low flame until they have become lightly fragrant, then have been allowed to cool down. The roasted herbs have been coarsely ground or pounded into a coarse powder using a mortar and pestle or a spice grinder. The coarse powders of all the herbs have been added to a stainless steel pot or a mud pot. 8 cups (approximately 2 liters) of water have been poured in and mixed well.

The pot has been placed on medium heat and the mixture has been allowed to come to a boil. Once it has started boiling, the heat has been reduced to low, allowing it to simmer gently. The mixture has continued simmering, with occasional stirring, until the liquid has reduced to one-fourth of its original volume (approximately 500 ml or 2 cups). Once the desired consistency has been reached, the pot has been removed from heat and allowed to cool slightly. The decoction has been strained through a clean muslin cloth or a fine mesh strainer to remove the herb residue **[10, 11]**.

The key characteristics that indicate a well-prepared and high-quality Varnadi Kashayam

A well-prepared and high-quality Varnadi Kashayam exhibits several key characteristics that reflect its potency and adherence to traditional Ayurvedic principles. The decoction's deep reddish-brown or burgundy color is a hallmark of its rich antioxidant content, primarily derived from Haritaki, Bibhitaki, and Amalaki. The aroma of a superior Varnadi Kashayam is distinct and earthy, with subtle bitter notes that harmoniously blend the individual herbs without overpowering the senses. This balanced fragrance is indicative of the quality and proper preparation of the herbal mixture. Upon tasting, one should experience a well-balanced bitter and astringent flavor profile, considered beneficial in Ayurvedic medicine. No single herb should dominate, ensuring a holistic representation of the formulation's components. The texture of the Kashayam is equally important, presenting as slightly viscous or syrupy. This consistency indicates thorough extraction of active compounds during the decoction process **[12, 13]**. The key characteristics of a well-prepared and high-quality Varanadi Kashayam given in **Table 2**. A high-quality preparation maintains a uniform texture without separation or sedimentation when properly stored.

Table 2: The key characteristics of a well-prepared and high-quality Varanadi Kashayam.

Characteristic	Description
Color	**Deep reddish-brown or burgundy color, indicating the presence of potent antioxidants and plant compounds, particularly from Haritaki, Bibhitaki, and Amalaki.**
Aroma	**Distinct, earthy, and slightly bitter aroma with pleasant notes of the individual herbs used in the formulation. The aroma should not be overpowering or unpleasant.**
Taste	**Characteristically bitter and astringent, considered beneficial in Ayurveda. The taste should be well-balanced, with no single herb overpowering the flavor profile.**
Texture	**Slightly viscous or syrupy, indicating proper extraction of active compounds from the herbs during the decoction process. The texture should be consistent throughout, without any separation or sedimentation when stored properly.**
Appearance	**Consistent appearance and texture, without any visible sedimentation when stored correctly.**
Shelf Life	**Can be stored for up to a week when refrigerated. However, fresh batches should be prepared regularly to ensure optimal potency and efficacy.**

Preparation Method	**Strict adherence to traditional Ayurvedic methods, including correct proportions of ingredients, proper roasting techniques, decoction time, and use of appropriate utensils like stainless steel or earthen pots.**
Quality of Herbs	**High-quality herbs should be sourced from reliable and reputable suppliers, with verification of their authenticity. Proper sourcing of herbs is critical for ensuring the efficacy and quality of the Kashayam.**

The typical analytical specifications for Varnadi Kashayam

The Varnadi Kashayam is a complex Ayurvedic preparation with distinctive organoleptic properties and precise physicochemical parameters. Its deep reddish-brown color, reminiscent of fine wine, is accompanied by an earthy, slightly bitter aroma that evokes images of ancient forests. With a pH ranging from 4.0 to 6.5 and a specific gravity between 1.02 and 1.05 at 25°C, the Kashayam exhibits a balanced nature and substantial density. Its total solids content of not less than 5% w/v speaks to its concentrated potency, while the absence of alcohol makes it widely accessible. Qualitative tests reveal a rich array of bioactive compounds, including tannins, glycosides, triterpenoids, and flavonoids, underscoring the Kashayam's complex phytochemical profile. Quantitative analysis further illuminates its composition, with total phenolic content not less than 2% w/v and total tannin content not less than 1.5% w/v, both indicators of its potent antioxidant and anti-inflammatory properties. Microbial limits are enforced, with total bacterial count not exceeding 10^5 CFU/ml and fungal count limited to 10^3 CFU/ml. Heavy metal limits are equally stringent, with lead, cadmium, arsenic, and mercury levels tightly controlled to prevent toxicity. Quality control measures include TLC and HPLC fingerprinting, providing detailed profiles of the Kashayam's phytochemical composition **[14]**. These techniques enable the identification of specific compounds and detection of any adulterants, ensuring consistency and purity. When stored correctly, it retains its potency for up to three years, though regular fresh preparation is recommended for optimal therapeutic benefits **[15, 16]**. Varanadi Kashayam works on Kaphadosha and Vatadosha, according to ayurveda. It also increases the Pitta dosha, which means it produces heat in the body. Its main action is on Pitta, which means it increases digestive fire, improves metabolic activities in the body and corrects cellular energy **[17]**. The various specifications of Varanadi Kashayam is given in **Table 3.**

Table 3: The various specifications of Varanadi Kashayam

Category	Details
Organoleptic Properties	Color: Deep reddish-brown or burgundy, similar to rich, velvety wine.
	Aroma: Slightly bitter, earthy; reminiscent of damp forest floors.
	Taste: Bitter and astringent, with a refreshing and invigorating lingering sensation.
Physicochemical Parameters	pH: 4.0 - 6.5
	Specific Gravity (at 25°C): 1.02 - 1.05
	Total Solids: ≥ 5% w/v
	Alcohol Content: Nil
Qualitative Tests	Presence of tannins, glycosides, triterpenoids, and flavonoids, confirming the presence of bioactive compounds.
Quantitative Analysis	Total Phenolic Content: ≥ 2% w/v (as gallic acid equivalent)
	Total Tannin Content: ≥ 1.5% w/v (as tannic acid equivalent)
Microbial Limits	Total Bacterial Count: ≤ 10^5 CFU/ml
	Total Fungal Count: ≤ 10^3 CFU/ml
	- Pathogens: Absence of Salmonella, E. coli, Staphylococcus aureus
Heavy Metal Limits	Lead (Pb): ≤ 10 ppm
	Cadmium (Cd): ≤ 0.3 ppm
	Arsenic (As): ≤ 3 ppm
	Mercury (Hg): ≤ 1 ppm
Pesticide Residue Analysis	Compliant with regulatory limits for herbal products.
Thin-Layer Chromatography (TLC)	Used to establish characteristic fingerprint profile for quality control, identifying specific compounds and detecting adulteration or contamination.
High-Performance Liquid Chromatography (HPLC)	Used to identify and quantify marker compounds such as gallic acid, chebulinic acid, and ellagic acid. Provides a detailed phytochemical profile.
Preservation and Storage	Store in a clean, dry, and airtight container at normal temperature.
Shelf Life	3 years.
Benefits	Works on Kapha and Vata dosha; increases Pitta dosha, enhancing digestive fire and metabolic activity; improves cellular energy.
Uses	Anti-inflammatory, antimicrobial, anti-carcinogenic; used for tumors, headaches, migraines, fever, obesity, thyroid disorders, hepatitis, uterine fibroids, rheumatism, indigestion, PCOS.

Uses

Varanadikashayam has strong anti inflammatory, anti microbial and anti carcinogenic properties. It is used in tumor, headache/ migraine, fever, obesity, thyroid disorders, hepatitis, uterine fibroids, rheumatism, indigestion and PCOS **[18]**.

Recent development of study on clinical, preclinical and toxicological of Varnadi Kashayam

Varanadi Kashayam has shown promising therapeutic potential in managing various health conditions, including childhood obesity. Clinical studies show moderate improvement in weight, skin fold thickness, and body circumference in 60% of children treated with Varanadi Kashaya Vati. The preparation also has anti-inflammatory properties, reducing monocyte-to-macrophage differentiation and cytokine release. A comparative study showed Varanadi Kashayam's superior results in obesity management. Further research is needed to fully understand its benefits and clinical applications. The studies on the efficacy and activity of Varanadi Kashayam in **Table 4**.

Table 4: The studies on the efficacy and activity of Varanadi Kashayam

Study/Activity	Details
Efficacy in Childhood Obesity	**A clinical study evaluated Varanadi Kashaya Vati and Navak Guggulu in childhood obesity (Sthaulya). Results showed 60% of children in the Varanadi group had moderate improvement and 30% showed mild relief in weight, skin fold thickness, body circumference, and other symptoms [19].**
Anti-inflammatory Effects	**An in vitro study using THP-1-derived macrophages demonstrated that Varanadi Kashayam reduced monocyte-to-macrophage differentiation, downregulated cell surface markers, decreased TNF-α and IL-1β release in LPS-induced macrophages, and downregulated related gene expression, indicating anti-inflammatory potential [14].**
Comparative Study with Vidangadi Churna	**In a study comparing Varanadi Kashaya and Vidangadi Churna for managing obesity (Sthoulya), Varanadi Kashaya showed superior results in reducing parameters like chest circumference, mid-arm and mid-thigh circumference, Hb%, HDL, VLDL, cholesterol, and triglycerides. Average improvement was 16.47% for Varanadi vs. 7.28% for Vidangadi [20].**
Anti-lipase and Antioxidant Activity	**The methanol fraction of Varanadi Kashayam showed significant pancreatic lipase inhibitory activity, and the ethyl acetate fraction exhibited potent free radical scavenging activity in DPPH and ABTS assays, with IC50 values comparable to standards (BHT and quercetin). The ethyl acetate fraction was rich in phenols and flavonoids [21].**
Toxicology Study	**A study evaluated the safety of Varanadi Kashayam in clinical settings for chronic sinus venous thrombosis. It showed promise in early and chronic stages of the condition, though the sample size was limited, necessitating further trials for conclusive results [22].**

Future perspective on research on Varnadi Kashayam

The future perspective on review on VarnadiKashayam, an Ayurvedic polyherbal decoction, appears promising based on the current studies and findings. The review conducted on Varnadi Kashayam has shown significant anti-inflammatory effects and potential therapeutic benefits in conditions like obesity, atherosclerosis, and chronic inflammatory diseases.Further investigations into the precise mechanisms through which Varnadi Kashayam exerts its anti-inflammatory effects can provide valuable insights into its therapeutic potential and aid in the development of targeted treatments. Conducting well-designed clinical trials to evaluate the efficacy and safety of Varnadi Kashayam in human subjects with various inflammatory conditions can validate its traditional uses and establish evidence-based guidelines for its clinical application. Continued research to identify and isolate specific bioactive compounds present in Varnadi Kashayam, such as gallic acid, chebulinic acid, and ellagic acid, can lead to the development of standardized formulations with optimized therapeutic benefits. Enhancing quality control measures, including standardization of preparation methods and ensuring consistency in the composition of Varnadi Kashayam, is essential for its reproducibility and reliability in clinical practice. Exploring novel applications of Varnadi Kashayam beyond its traditional uses, such as in the management of other inflammatory disorders or as an adjuvant therapy in modern medical practices, can expand its therapeutic potential.

CONCLUSION

In conclusion, the future of research on Varnadi Kashayam holds promise for uncovering its full therapeutic potential, enhancing its clinical utility, and contributing to the integration of Ayurvedic medicine into mainstream healthcare practices. Continued scientific exploration and collaboration between traditional knowledge and modern research methodologies can further validate and harness the benefits of this ancient herbal decoction for the well-being of individuals.

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