

THERAPEUTIC USE OF GUDUCHYADI KASHAYA - A REVIEW ARTICLE

Manisha Amitkumar Jagtap*

Lecturer in Kaumarbhritya Dept. in Sumatibhai Shah Ayurved Mahavidhyala Hadapsar.

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***Corresponding Author**

**Dr. Manisha Amitkumar
Jagtap**

Lecturer in Kaumarbhritya
Dept. in Sumatibhai Shah
Ayurved Mahavidhyala
Hadapsar.

ABSTRACT

According to one of the most authoritative treaties of Ayurveda, Charak Samhita, Knowledge of Trisutra- Hetu (causative factor of disease), Linga (sign and symptoms of disease) and Aushadha (knowledge of therapeutics, treatments and medicines) forms the basic frame work of Ayurveda. The Ayurvedic formulations are based mainly on Panchavidha kashaya kalpana– the five basic principles of preparation of herbal medicines. They are Swarasa (expressed juices), Kalka (Paste), Kwatha (Decoction), Hima (Cold infusion) and Phanta (Hot infusion). Decoction is used internally for drinking or for medicated enemas or externally for eye wash. Kashaya is that which irritates the throat and Kashaya kalpana irritate the disease condition

and throw them away from the body. Guduchyadi' Kwath is a polyherb Ayurvedic preparation useful in various diseases. It is mainly used in the treatment of Jwara (fever) as Guduchi has 'Jwaraghna' properties. Guduchyadi kashaya (decoction) is concentrated decoction of herbs in water which builds immunity and treat all types of fever. It balances three doshas i.e. vata, pitta and kapha. it can be used in all infections occurring with burning sensation and high grade fever. It's main content is guduchi, which is natural immunity booster and having antipyretic action mainly. It is useful in all type of Jwara, Daha, Trushna, Chardi, kshudamandya and Twaka vikara. According to modern science it showed anti inflammatory, antioxidant, antibacterial, antiviral, antimalarial, hepatoprotective, wound healing and immunomodulatory action. The present study is aimed to critically review the formulation Guduchyadi kashaya's ingredients and probable mode of action in different clinical conditions.

KEYWORD: Guduchyadi Kashaya, jwara, Aam, immunomodulatory effect, antimicrobial activity.

INTRODUCTION

In different regions and cultures, herbal products are used as single herb, combination of herbs, or combination of herb (s) and drug (s). Due to several side effects of allopathic medicine, in recent years there has been increase demand of herbal medicine by the majority of population throughout the World. Polyherbal formulations with various active principles and properties have been used from ancient days to treat a wide range of human diseases. Polyherbal formulations are collection of therapeutic entities that are formulated and prepared on the basis of the healing properties of individual ingredients with respect to the condition of diseases. Such herbal constituents with diverse pharmacological activities principally work together in a dynamic way to produce maximum therapeutic benefits with minimum side effects.^[1] Currently, polyherbal formulations are employed for the treatment of various types of diseases in order to achieve enhanced therapeutic effects. In the present review we have included of polyherbal formulation Guduchyadi kashaya firstly mentioned in Ayurvedic scripture Sharangdhara Samhita, prescribed for the treatment of all type of Jwara, Daha, Trushna, Chardi, kshudamandya and Twaka vikara Ajirna, Gulma.^[2] Mode of action of a poly herbal Ayurvedic formulation is a critical and essential issue to be considered in assuring the therapeutic efficacy and safety. Guduchyadi kashaya is one of the commonly used preparation containing very safe and easily available Herbal drugs. This Ayurvedic formulation is commonly practiced to treat various gastrointestinal disorders mainly arises from Mandagni and Mandagni leads to Ama (Undigested Food Residue) formation in the body. Drugs present in Guduchyadi kashaya mainly of Katu, Tikta Rasa, Laghu, Tikshana, Ruksha Guna, Usna Virya, Madhura Vipaka, Deepana, Pachana, Anulomana, Rochana, Shoolhara, Krimighna, Jwaraghna, Triptighna, Vishaghna properties and have Kapha-Vata hara action, which improves the Jatharagni by relieving Ama.

It detoxifies body and purifies blood also improves functions of Liver and Kidneys and balances three Doshas (Vata, Pitta, Kapha). It can be used in all infections occurring with burning sensation and high grade fever. Its main content is Guduchi, which is natural immunity booster and having Antipyretic action mainly.

MATERIAL AND METHOD

The authentic subject has been reviewed from Ayurveda and Modern medical Literature. Different research and review article were searched in different Journals. The subject material has also been searched on internet. This review is mainly focused on Probable mode of action of Ayurvedic Formulation Guduchyadi Kashaya.

The contents of Guduchyadi Kwath are as follows (Yogratnakar-jwara chikitsa pg no 206)

Guduchi- *Tinospora cordifolia*^[3]

Dhaniya- *Coriandrum sativum*^[4]

Neem- *Azadirachta indica*^[5]

Raktachandan- *Pterocarpus santalinus*^[6]

Padmaka- *Prunus cerasoides*^[7]

Characteristics of ingredients of guduchyadi kwatha^[3-7]

Dravya	Rasa	Vipaka	Virya	Doshagnata	Rogaghanata
Guduchi	Tikta, Kashaya	Madhur	Ushna	Tridosahara	Jwara, Trushna, Daha, Visarpa, Pandu, Kamala, Prameha
Dhanyaka	Kashaya, Tikta	Madhur	Ushna	Tridosahara	Jwara, Trushna, Daha, Chardi
Neem	Tikta, Kashaya	Katu	Shita	Kapha-Pittahara	Jwara, Kushtha, Krumi, Prameha, Vrana
Raktachandan	Tikta, Madhur	Katu	Shita	Kapha-Pittahara	Jwara, Daha, Bhrama, Raktapitta
Padmaka	Kashaya, Tikta	Katu	Shita	Kapha-Pittahara	Trushna, Raktapitta, Visarpa, Kushtha, Chardi.

Method of preparation of decoction^[8]

The Guduchi stem, Neem bark, Raktachandan stem, Dhanyak beej and Padmak stem are taken in equal proportion. Then these are grinded coarsely to prepare a powder called as 'Guduchyadi Churna'. 1 tola (approx 12gms) of this powder is taken and boiled in 16 tola (approx 192ml) water till volume reduces to one- fourth.

Ayurvedic Properties of guduchyadi kashaya.

Dosh karma	Pacifies mainly Pitta Dosha, then Kapha and Vata Dosha
Dhatu	Acts on Rasa, Rakta, Meda
Organ effect	Over Stomach, Liver, Kidney, Skin
Main indication	Fever and supportive therapy in infections

Therapeutic indications

- All types of Jwara (Fever)
- Daha (Burning sensation in body)
- Trushna (Excessive thirst) and problems related to vitiation in Pitta dosha
- Chhardi (Vomiting with nausea)
- Kshudhamandya (Low appetite)
- Ajeerna (Indigestion)
- Twaka vikara (Detoxifies body and purifies blood and thus helps in Skin diseases).

Dosage: 15 to 30 ml

[with equal quantity of water twice a day for 2 to 3 weeks]

Pharmacological action of each drug.

‘Guduchyadi Kwath’ has anti-inflammatory and anti-microbial properties that’s why it is useful in reducing inflammation and arresting microbial growth. It mainly eradicates burning sensation, sour taste of mouth, nausea and vomiting associated with acidity. According to Ayurveda, it mainly acts over Pitta Dosha and Kapha Dosha ailments.

Pharmacological action of Guduchi- (Tinospora cordifolia Willd)

Tinospora cordifolia Willd, is commonly called as Guduchi, Amrita in Ayurveda. It is a well known medicinal plant for its massive applications in the treatment of various diseases, mentioned in the ancient and traditional Ayurveda literature. *Guduchi* is considered one of the best *Rasayana* and is remarkable in its potent adaptability. The *Balya* and *Rasayana* properties of the plant helps during the post infectious phase in salvage the strength of the body. The alcoholic and aqueous extracts of *T. cordifolia* have been tested successfully for their immunomodulatory activity.^[9] It acts in various infectious diseases through its *Amapachana*, *Agnideepana*, *Jwaraghna* and *Balya* properties.^[10] The *Ama* (~undigested food material) which is released into circulation by the infectious agent and the resultant *Agnimandya* (~indigestion) can be managed with the *Amapachana* and *Agnideepana* properties of *Guduchi*. The *Jwaraghna* property of the plant helps in alleviating the general description of infectious diseases like fever, cough.^[11] The dark bark of *T. cordifolia* has been shown to possess antipyretic, antiallergic, anti-inflammatory and antileptotic properties.^[12-15] *T. cordifolia* and its constituents have been shown to possess the immune-stimulating properties. *T. cordifolia* and its constituent α -D-glucan stimulate NK cells, B cells, and T

cells with simultaneous production of various immune-stimulatory cytokines.^[16-17] The stem is used as diuretic, stimulates bile secretion, and cures jaundice.^[18] The extract of the stem is also useful in skin diseases and in combination with other drugs act as an antidote to snakebite.^[19] *T. cordifolia* has been shown to be effective against diabetes mellitus.^[20]

Aqueous and methanolic extracts (AETC or METC) of *T. cordifolia* possess immune stimulatory, antimicrobial, hepatoprotective, and antioxidant properties. Interestingly, AETC or METC inhibited the intracellular multiplication of *S. typhimurium* in macrophages.^[21]

Pharmacological action Raktachandana-(Pterocarpus santalinus)

Pterocarpus santalinus Linn. commonly known as Red Sandalwood belongs to the family Fabaceae. In Ayurveda, an Indian system of traditional medicine, it is mentioned that the heartwood of the plant is used as external application for treating inflammation, diabetes, headache, skin diseases, and jaundice, and in wound-healing. *Pterocarpus santalinus* i.e. Raktachandana has wide medicinal properties. The heartwood and bark have exhibited antidiabetic, antimicrobial, anti-inflammatory, and hepatoprotective activities.^[22-24]

Antibacterial and radical-scavenging activities of plant extract showed by several researchers and they proved that the extract showed effective antibacterial and radical-scavenging activities with no side effects.^[25-26]

Gastroprotective mechanisms

Gastric mucosal injury results as a consequence of various conditions and activities, including alcohol intake, refluxed bile salts, stress, aging, *H. pylori* infection, and most of the nonsteroidal anti-inflammatory drugs. The ethanolic extract of heartwood restored the activities of tricarboxylic acid cycle (TCA) enzymes, prevented mitochondrial dysfunction by providing mitochondrial membrane integrity including a hydrophobic nature to the gastric mucosa, and reversed the damage caused by ulcerogens at a dose of 200 mg/kg body weight/day.^[27]

Angiogenesis and wound-healing activity

The process of generating new blood vessels from pre-existing ones is called angiogenesis. The plant also has a wound-healing property.^[28]

Pharmacological action of dhanyaka- (Coriandrum sativum)

Coriandrum sativum family umbelliferae is highly reputed ayurvedic medicinal tree. In Indian traditional medicine, coriander is used in the disorders of digestive, respiratory and urinary system, as it has diaphoretic, diuretic, carminative and stimulant activity. The different part of this plant contain monoterpenes, alpha -pinene, limonene, p-cymene, citronellol camphor.

Therapeutic uses

Local swelling and pain, Headache caused by pitta.

CNS- Tonic for majjadhatu, vertigo

Digestive system-appetizer, liver stimulant, anthelmintic

Urinary system- diuretic.

Dhanyaka contains Madhura, Tikta, Kashaya, Katu Rasa, Ushna virya and Madhura vipaka.^[29] Due to presence of Madhura Tikta and Kashaya Rasa along with Madhura vipaka, it is kapha vata shamak.^[30] Neem ingredients are applied in Ayurveda, Unani, Homeopathy, and modern medicine for the treatment of many infectious, metabolic, or cancer diseases.^[31-32]

Pharmacological studies

Diuretic- The crude aqueous extract of coriander seeds increase diuresis, excretion of electrolyte and glomerular filtration rate in a dose dependent way. the mechanism of action of the plant extract appears to be similar to that of furosemide.^[33] It also showed antioxidant properties.^[34] It also showed anti-microbial activity. Quercetin and β -sitosterol were first polyphenolic flavonoids purified from fresh leaves of neem and were known to have antifungal and antibacterial activities. Numerous biological and pharmacological activities have been reported including antibacterial antifungal, and anti-inflammatory.^[35]

Other study results revealed that neem leaf extract showed significant anti-inflammatory effect but it is less efficacious than that of dexamethasone.^[36]

Earlier finding showed immunomodulator and anti-inflammatory effect of bark and leave extracts and antipyretic and anti-inflammatory activities of oil seeds.^[37,38]

Hepatoprotective effect

Study was carried out to evaluate the protective effect of active constituent of neem such as nimbolide against carbon tetrachloride (CCl₄) induced liver toxicity in rats and results suggest

that nimbolide possesses hepatoprotective effect against CCl₄ induced liver damage with efficiency similar to that of silymarin standard.^[39] and another study finding revealed that leaf extract was found to have protection against paracetamol-induced liver necrosis in rats.^[40]

Anti-malarial activity

Experiment was made to evaluate the antimalarial activity of extracts using *Plasmodium berghei* infected albino mice and results revealed that neem leaf and stem bark extracts reduced the level of parasitemia in infected mice by about 51–80% and 56–87%, respectively.^[41] and other studies showed that azadirachtin and other limonoids available in neem extracts are active on malaria vectors.^[42-43]

Wound healing effect

Numerous plants/their constituents play an important role in the wound healing effect. A study was made to evaluate the wound healing activity of the extracts of leaves of *A. indica* and *T. cordifolia* using excision and incision wound models in Sprague Dawley rats and results revealed that extract of both plants significantly promoted the wound healing activity in both excision and incision wound models.^[44]

Antibacterial activity

A study was performed to evaluate antimicrobial efficacy of herbal alternatives as endodontic irrigants and compared with the standard irrigant sodium hypochlorite and finding confirmed that neem leaf extracts and grape seed extracts showed zones of inhibition suggesting that they had antimicrobial properties. Furthermore, neem leaf extracts showed significantly greater zones of inhibition than 3% sodium hypochlorite.^[45]

Antiviral activity

Leaves extract of neem (*Azadirachta indica* A. Juss.) (NCL-11) has shown virucidal activity against coxsackievirus virus B-4 as suggested via virus inactivation and yield reduction assay besides interfering at an early event of its replication cycle.^[46]

Antifungal activity

Experiment was made to evaluate the efficacy of various extracts of neem leaf on seed borne fungi *Aspergillus* and *Rhizopus* and results confirmed that growth of both the fungal species was significantly inhibited and controlled with both alcoholic and water extract. Furthermore,

alcoholic extract of neem leaf was most effective as compared to aqueous extract for retarding the growth of both fungal species.^[47]

Antinephrotoxic activity

An experiment was made to investigate the effects of methanolic leaves extract of *Azadirachta indica* (MLEN) on cisplatin- (CP-) induced nephrotoxicity and oxidative stress in rats and results confirmed that extract effectively rescues the kidney from CP-mediated oxidative damage.^[48]

Immunomodulatory and growth promoting effect

Experiment was performed to investigate growth promoting and immunomodulatory effects of neem leaves infusion on broiler chicks and results showed that neem infusion successfully improved antibody titre, growth performance, and gross return at the level of 50 mL/liter of fresh drinking water.^[49]

Padamaka properties (Prunus cerasoides)

Ayurvedic Properties of Padamaka is give in ayurvedic granthas. Ras- Kashaya, Tikta Guna- Laghu, Snigdha Virya – Seeta Vipaka- Kattu Karma- Kapha-pittahara, Garbhasthapana, Vedna sthapana, Vrisya, Varnya.

Medicinal uses of prunus cerasoides

The stem is bitter, acrid, antipyretic, refrigerant, vulnerary causes flatulence, cures leprosy, hallucinations, burning of the body, leucoderma, erysipelas. Useful in vomiting thirst asthma etc It is used in vitiated condition of Pitta, burning sensation, sprains neuralgia, wound, ulcer, skin decolouration, pruritis, diarrhea.^[50] Plant was reported to have antispasmodic^[51] and antioxidant^[52] properties. Padmakashtha (stem) is the main useful part mentioned in all Ayurvedic classics. Padmaka is referred to as the Kathinatama Dravya (hard drug) in Sharangadhaa Samhita.^[53] Classically many therapeutic uses have been elaborated but all these are yet to be tested practically. Very few works are attempted on the therapeutic utility of the drug except for few pharmacological activities such as anti oxidant, analgesic, anti spasmodic activities. Hence there is a large scope for the researchers to explore and evaluate the pharmacological activities of the drug.

DISCUSSION

The main objective of this review article is to discuss the therapeutic uses of Guduchyadi kashaya and to discuss the different pharmacological properties and therapeutic uses of isolated constituent drugs of guduchyadi kashaya. This review is mainly focused to find out the important properties of the individual drugs and their possible effects in Samprapti Vighatan of diseases.

Acharya Charaka states that, certain drugs act through Rasa; some through Virya; some through their Gunas; some through their Vipaka and some through their prabhava. On the basis of physiochemical properties of Guduchyadi kashaya, probable mode of action can be understood as follows,

Probable of mode of action of guduchyadi kashaya

Guduchyadi Kwatha contains drugs namely Guduchi, Dhanyak, Nimba, Raktachandan, Padmakashtha. Most of these drugs are having Katu, Tikta, Kashaya-Rasa, Laghu, Rooksha-Guna and Katu Vipaka, Ushna-Virya. These are said to be Kaphagna, Raktashodhak, Shothahar, Mutral, Anuloman.

Based on the rasa, guna, virya and vipaka

In Guduchyadi Kwath, drugs having Tikta, Kashay, Katu Rasa. Tikta and Katu Rasa are mainly Agnivardhaka, Amapachaka and Medohara and Tikta and Kashay Rasa's are Pittashamak. So, by virtue of these Rasa's, the compound formulation helps stimulating Jatharagni as well as Dhatwagni. On examining the Gunas, it is observed that most of the drugs possess Laghu and Ruksha Guna. Laghu Guna helps in increasing Jatharagni as they are easily digestible. Tikshna Guna helps in absorption of Sama Meda (Malarupi Kapha). Guduchyadi Kwatha possess Ushna and Sheeta Virya in the ratio 3:2, Ushna Virya increases metabolism (catabolism). Agni Deepana Property of the Drugs: Almost all the Drugs of the present formulation have Agni Deepana Property. Shita Virya which helps in pacifying Kosthagata Malarupi Pitta. The drugs in the Polyherbal formulation- Guduchyadi Kwatha possess Madhura and Katu Vipaka in the ratio of 2:3, which is quite supportive for promoting and restoring the normal functions of the damaged Dhatu by nullifying and rejuvenating the Dhatu from the effect of Prakupita Dosha and thus restore Dhatu Samyatva. By virtue of Vipaka, the Ayurvedic drugs help in pacifying Pitta simultaneously with the establishment of Dhatu Rupi Pitta and increases the Agni. The formulation help in maintaining equilibrium of Doshas by pacifying increased and vitiated Dosha (Malarupi

Pitta), simultaneously with enhancing Agni and Amapachana (Dhatugata Ama), Srotosodhana and acts on Kosthagata Ama. It helps in digestion of Ama Dosha therefore uprooting the basic cause of the disease. It not only helps in digestion of Ama Dosha but also stops further production of Ama Dosha.

Guduchyadi kashaya is considered one of the best *Rasayana* and is remarkable in its potent adaptability. The alcoholic and aqueous extracts of *T. cordifolia* have been tested successfully for their immunomodulatory activity. It acts in various infectious diseases through its *Amapachana*, *Agnideepana*, *Jwaraghna* and *Balya* properties. The *Ama* (~undigested food material) which is released into circulation by the infectious agent and the resultant *Agnimandya* (~indigestion) can be managed with the *Amapachana* and *Agnideepana* properties of *Guduchyadhi kashaya*. The *Jwaraghna* property of the plants helps in alleviating the general description of infectious diseases like fever, cough. The *Balya* and *Rasayana* properties of the formulation helps during the post infectious phase in salvage the strength of the body. Potential therapeutic properties reported by modern scientific research includes antipyretic, anti-inflammatory, antioxidant, anti-allergic, antispasmodic, adaptogenic, hypoglycemic, anti-stress, anti-rheumatic, anti-malarial, hepato-protective and immuno-modulatory activity, Hypolipidaemic, Angiogenic, Free Radical Scavenging, activity, Hypotensive, Diuretic and Hepato Curative effects etc..It also showed antimicrobial activities against klebsiella pseudomonal and E.coli.

CONCLUSION

The historical evidence confirms the *ingredients present in guduchyadi kashaya* is act as a multipurpose resource for life. Different active compounds are demonstrating the varied adaptability of the plants. With so much to offer to the scientific world of medicine, the preparation *Guduchyadi kashaya* truly acts as an incredible source. The present review highlights the various therapeutic uses of *Guduchyadi kashaya* mentioned by great *Ayurveda* sages and recommends that there is huge scope of further scientific research on various therapeutic aspect of this important formulation.

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