



Review Article

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A REVIEW ON TRIKATU CHURNA

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ABSTRACT

Ayurveda has an ancient heritage of traditional herbs in which Trikatu is very precious. Trikatu is a poly herbal preparation. It consists of three crude drugs namely Maricha (*Piper nigrum* Linn), Pippali (*Piper longum* Linn) and Shunthi (*Zingiber officinalis* Rosc) in the ratio of (1:1:1; ww). Trikatu also called as Katutrikam, Tryusnam, Vyosa. Trikatu is used as solo drug rarely, but it is an essential ingredient of numerous formulations and prescriptions of Ayurvedic medicine. Trikatu churna is considered as one of the best drugs to treat the condition of Ama (improperly digested absorbed and improperly metabolised food particles including free radicles). Trikatu is regarded as the drug of choice in cases of Agnimandya (poor digestion due to faulty digestive process). In Brihatrayi, it is recommended for various diseases due to Agni (digestive fire) vitiation such as Grahaniroga (Malabsorption syndrome), Udara roga (major diseases of abdomen surgical and medical like hepatomegaly, splenomegaly and ascites), Arsharoga (piles) etc. Its contents are dipana and pacana in their action. By virtue of these properties the drug becomes effective in managing ama. The objective of this article is to highlight classification, synonyms, pharmacological actions as described in various diseases, and different formulations of Trikatu in ancient Ayurvedic.

Keywords. Trikatu, Brihatrayi, Agnimandya

INTRODUCTION

With the emerging interest in the world to adopt to study the traditional system and to exploit their potentials based on different healthcare systems. W.H.O. estimates that about 70% of the world population use traditional medicine and herbal products for their primary health care needs¹. India has an ancient heritage of traditional herbal medicine. The Trikatu churna is one of the classical Ayurvedic dosage form used in Ayurvedic Formulary of India. Trikatu is a Sanskrit word “Tri” means three, “Katu” means pungent taste. Trikatu is a compound herbal formulation containing three bitter herbs contains Sunthi (*Zingiber officinale*), Marich (*Piper nigrum*) and Pippali (*Piper longum*) mixed together in equal quantities Trikatu is preliminary present in household for the purpose of dietary aspect in the form of spices. In Ayurveda it is widely used for the therapeutic and prophylactic purpose. Several Ayurvedic medicine contain trikatu. It has Katu rasa (pungent taste), Ushna veerya (hot potency), laghu (light), ruksha (dry), deepana (stimulating), Kapha-Vatahara property and amapachaka (digestive) effect. By virtue of above-mentioned properties, it regulates the function of Agni^{2,3}. Trikatu with piperine as an important active principle exhibits potent anti-inflammatory activity and this has been studied extensively in the conditions of Rajyakashma (tuberculosis) and Aamvata (rheumatoid arthritis)³. It is widely used for rejuvenation, splenomegaly, hepatomegaly, sthaulya, gaurav and other Kaphaja related disease. In animal studies, piperine also inhibited other enzymes important in drug metabolism⁴. Trikatu is reported to

enhance bioavailability.⁵ Trikatu also acts as an aphrodisiac and strengthens reproductive functions and energizes the reproductive organs. Trikatu is regarded as a rasayana (immunomodulator) also⁶. Ayurvedic Properties of trikatu churna are summarise in Table 1.

Acharya Charaka said synonyms of Trikatu as Vyosha and Katutrika. He described Pippali, Maricha, Sunthi collectively in his classification as Shoolprashaman (Antispasmodic) Mahakasaya. He did not state Pharmacology of Trikatu but described pharmacological properties of its three content drugs separately in Annapanvigyania adhyaya. Acharya Charaka indicated many formulations of trikatu such as Tryushanadi mantha, Vyoshadi mantha and Kushthadichurna for the treatment of Sthaulya and various Santarpanjanya vikara. First of all, Sushruta described Trikatu as a gana in his classification of drugs, and states its pharmacological actions such as Medoaghanam, Pramehaghanm, Kusthaaghana, Dipana and indicated in Tvak Roga, Gulma (abdominal mass movable and immovable, peenas (sinusitis). Acharya Vagbhata described Trikatu in Ashtanga Samgraha, chapter Vividha aushadha vijyania Adhyaya and in Ashtanga Hridaya, Sutra sthana, chapter Annaswaroop vigyania adhyaya. Here he told the pharmacological actions and indications of Trikatu. He said its synonym Vyosha and Triushana. Acharya has not given place to the Trikatu in his classification but described as single drug collectively in Dipaniya and Shoolprashmniya Mahakashaya in chapter Mahakashaya Samgraham Adhyaya. He indicated it in the treatment of Sthaulya (obesity), Mandagni (poor digestion).

Swasa (difficulty in breathing), Kasa (Cough), peenas (sinusitis) etc. and he described many formulations of Trikatu. Kushthadichurna of Charaka is described by Acharya Vagbhata in as Hingvadi churna and it is used in the treatment of Sthaulya. In Ashtanga Hrdaya, Acharya indicated Trikatu very commonly for the treatment of Udar roga, Gulma, Swarbheda (hoarseness of

voice). Kaphamedoghanam that means it removes the kapha and meda and deepan means improves the Agani. He also indicated the uses of Trikatu in the treatment of Maha Kushtha chikitsa, Prameha chikitsa, Udara chikitsa, Shoph a chikitsa etc. Formulations and indication of Trikatu in various other diseases are described in Table 2.

Table 1: Properties of Trikatu Churna

Name	Botanical name	Synonyms	Pharmacological properties
Pippali	<i>Piper longum</i> Linn	Kana, Krsna, Kala, Capala, Tikсна, Tandula	Rasa-Katu. Guna-Laghu Virya-Ushna Vipaka-Madhura
Adraka/Sunthi	<i>Zingiber officinale</i>	Nagara, Srngavra, Visva, Visvabhejasa, Katubhadra	Rasa-Katu. Guna-Laghu. Virya-Ushna Vipaka-Madhur. Dosha karma-Kapha, Vata Samak
Maricha	<i>Piper nigrum</i> Linn	Usana, Krsna, Dhanvantari, Dharmapattana, Vellaja, Sakanga	Rasa-Katu Guna-Tikshna, Laghu. Virya-Ushna. Vipaka-Katu Doshakarma-Kaphavatahara

Table 2: Formulations and indication of Trikatu

Yoga (Formulations)	Rogadhikara (indication)
Triushnadi Ghrita	Gulma (Ch.Chi.5/65-66)
Hingusouvarchaladhyam Ghrita	Gulma (Ch.Chi.5/69-70)
Hingvadi churna Gutika	Gulma (Ch.Chi.5/79-84)
Dashmuli Ghrita	Gulma (Ch.Chi.5/142)
Tryushnadhya Ghrita	Grahani Roga(Ch.Chi.15/87)
Chitrakadi Gutika	Grahani Roga(Ch.Chi.15/96-97)
Bhunimbadi Churna	Grahani Roga(Ch.Chi.15/132-133)
Navayasa Churna	Pandu Roga(Ch.Chi.16/17)
Mandura Vataka	Pandu Roga(Ch.Chi.16/73)
Yogaraja	Pandu Roga (Ch.Chi. 16/80)
Trushnadya Ghrita, Chitrakadi Leha	Kasa Chikitsa(Ch.Chi.18/53) (Ch.Chi.18/39-42)
Amrita Ghrita	Vishachikitsa(Ch.Chi.23/242-249)
Hingvadi Churna	Mahavatavyadhichikitsa(Su. Chi.5/28)
Mahanila Ghrita	Kushtha chikitsa(Su. Chi.9/38)
Mahavajiraka Taila	Kushtha chikitsa(Su.Chi.9/56))
Triushnadi Ghrita	Gulma (A.H.Chi. 14/21)
Hapushadi Ghrita	Gulma (A.H.Chi. 14/11-12)
Lashunadi Ghrita	Gulma (A.H.Chi. 14/23-25)
Hingvashtaka Churna	Gulma (A.H.Chi. 14/34-35)
Narayan Churna	Udar Roga(A.H.Chi.15/21)
Vyoshadi Mantha	Sthaulya roga (A.H.Sutra. 14/24)

Contraindications: All condition of Pitta dosha, acid dyspepsia, heartburn. Burning sensation in any part of the body such as in the throat, abdomen, feet, or hands. Vomiting. Red eyes. Skin diseases with burning sensation as a symptom. Constipation with dry and hard stool or bleeding in stool. Bleeding disorders. High-risk pregnancies. Threatened abortion are contraindicated for uses of trikatu churna.

Dosage: Ayurvedic texts prescribe 1–3 g of Trikatu churna to be consumed with honey to mask the bitter taste or warm water for maximum therapeutic benefits.

Physicochemical Parameter: The values of the physicochemical parameters for Trikatu churna in the Ayurvedic Pharmacopoeia of India are given below⁷ :

- Loss on drying at 110 °C: Not more than 10% w/w
- Ash: 4-7% w/w
- Acid Insoluble ash: Not more than 1% w/w
- Water Soluble extractives: 10-15 % w/w
- Alcohol soluble extractives: 10-15 % w/w

Chemical constituent: Trikatu contains the three herbs *P. longum*, *P. nigrum*, and *Z. officinale*. Ginger consists of volatile oil (1-4%), starch (40-60%), fat (10%), fiber (5%), inorganic material (6%), residual moisture (10%), and acrid resinous matter (5-8%). Ginger oil is constituted of monoterpene hydrocarbons, sesquiterpene, hydrocarbons, oxygenated mono and sesquiterpenes and phenylpropanoids. Black pepper contains volatile oil, alkaloids and resin (6%), piperidine and starch (30%). The volatile oil 1-2.5% is responsible for the aroma of pepper and comprises of terpenes like α and β -pinene, dipentene, phellandrene and sesquiterpenes. Long pepper fruit contain 1% volatile oil, resin, alkaloids piperine and piperlonguminine, a waxy alkaloid N-isobutyl trans 2: trans 4 decadienamide, sesamin a lignin derivative and a terpenoid substance. Piperlonguminine was proved to be isobutylamide of piperic acid.⁸

DISCUSSION

Trikatu Churna comprising *Zingiber officinale* rhizome, *Piper longum*, and *Piper nigrum* fruit, is effective in treating many

diseases and has high nutraceutical values. Trikatu is an effective formulation in treating Mandagni. Trikatu has katu rasa which acts on ama by virtue of its pacana karma. Although katu rasa should vitiate vata but owing to madhura vipaka and usna guna of the drug, vata is taken care of. All the three factors viz., vata and kapha have sita guna in common, Trikatu being usna does not allow the aggravation of any of these. Also, by virtue of this usna guna Trikatu churna works to regulate the function of agni. Thus by regulating agni dipana and pacana karmas are effectively carried out. Current research advocate that Trikatu possess statistically significance DPPH free radical scavenging activity at a concentration of 100 µg/ml, inhibited the production of superoxide anion radical by 89.74% showing strong superoxide radical scavenging activity.⁹ 'Trikatu' by virtue of its ability to reduce triglycerides and LDL cholesterol and to increase HDL cholesterol can reduce the risk of hyperlipidaemia and atherosclerosis. Hence 'Trikatu' can be used as a potent hypolipidemic agent, and it can reduce the atherosclerosis associated with a high fat diet¹⁰ Trikatu reversed stress-, fluoxetine-induced anorexia. The study provides strong evidence of the synergistic action of Trikatu to reduce stress-induced anorexia.¹¹ Trikatu show Antitumor Activity.¹² The ethanol extract of trikatu show hepatoprotective activity by lowering serum levels of glutamic oxaloacetic transaminase, glutamic pyruvic transaminase, alkaline phosphatase and total bilirubin. Ethanol extract of Trikatu showed moderate antibacterial activity against all the bacterial pathogens while methanol extract showed strong antibacterial activity against *S. epidermidis* and *S. aureus*, moderate antibacterial activity against *P. vulgaris*, *P. aeruginosa*, *S. typhi*, *E. coli*, *K. pneumoniae*, *S. typhimurium* and *E. aerogenes*.¹³ Aqueous extract of Trikatu showed higher anthelmintic activity as compared to the standard drug albendazole.¹⁴

Analysing the properties of Trikatu churna, the possible mode of action of the Trikatu churna may be due to its property of thermogenesis and its action as bioavailability enhancer. According to Ayurveda also the Usna guna and Katu rasa of Trikatu stimulates Pitta. It has predominance of Agni, Vayu and Akash mahabhut which is responsible for Kapha saman. It has Deepaniya and Pachaniya property and it promotes Agni. Besides the Tikshna property of Trikatu ensures tissue penetration thereby showing its action in Mandagni at the Dhatwagni and Bhutagni level. Agni and agni vyapar is all belong to digestion, absorption from the intestine, circulation of nutrients in the blood and metabolism at the micro level i.e. the cellular level. Modern researches have proved that Trikatu promotes the secretion of digestive juices, increases appetite and stimulates the formation of acid thus inhibiting gaseous distension. Its thermogenic effect, metabolic enhancement and nutrient bioavailability enhancing properties render it particularly beneficial in the support of respiratory health. So used in the treatment as rasayana.

CONCLUSION

Trikatu is a very common drug in ancient classics, in Brihattryi it is very frequently used as a component of important formulations. Charaka recommended it for the treatment of Santarpanjanya vikara such as Medoroga (obesity including lipid disorders), Prameha (diabetes), jvara (fever) and Aganidushati janit vikara (GIT disorders) such as aamdosh, grahani (chronic dysentery), gulma (abdominal mass) etc. Further, seeing the importance of trikatu, Sushruta classified trikatu as a gana (class) and highlights its pharmacology first time. He states that Trikatu is Kaphamedoghanam and Agnidipana. Further Vagbhata and

almost all the authorities in Ayurveda support these actions of Trikatu. Agni performs functions related to appetite, hunger, digestion and metabolism in our body. Trikatu predominant with Agni, the one important component of Panchamahabautia is effective medicine in treating the diminution of Agni and thereby itself is a complete medicine in the entire disorders of Agni.

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