ORIGINAL RESEARCH PAPER

Ayurveda

THE ROLE OF KARKATSHRINGI IN KASA VYADHI- CONCEPTUAL STUDY

KEY WORDS: Karkatshringi, Kasa, Kpha, Vata, Bronchodilator

Dr. Tarun Choudhary

MD. Ayu Dravyaguna, Government Dhanwantari Ayurvedic college and hospital Ujjain M.P.

ABSTRACT

The well-known medicinal herb karkatsringi is used in Ayurveda. The plant Pistacia integerrima Stew. ex Brandis, which grows on the steps of the Western Himalayas from Indus to Kumaon, has gall-like excrescences that are caused by insects. The plant having properties of Kasaya, Tikta Rasa, Laghu, Ruksha Guna, Katu Vipak and Ushna Virya. It has Kaphavata Shamaka characteristics. Kasa occurs due to obstracted Vata and Kapha Dosha. Karkatshringi will hence perfectly treat Kasa condition. Additional antimicrobial, antifungal, antiparasitic, and antiviral properties are present in karkatshringi. Since the galls have the most health benefits of all the parts, they are more frequently used in folk medicines. Karkatshringi has so been chosen for this paper.

INTRODUCTION -

Ayurveda, a natural system of medicine, originated in India more than 3,000 years ago. The term *Ayurveda* is derived from the *Sanskrit* words *Ayur* (life) and *Veda* (science or knowledge)[1]. Almost everyone has had a coughing spell at some point in their life. *Kasa* is a disease mentioned in *Ayurveda* which involves most of the presentations of a respiratory tract disease. *In Ayurveda, the word 'cough' or the act of coughing is known as 'kasa.. Kasa* is both a symptom and disease which is caused by various factors such as smoke entering the mouth, nose, throat etc, Exposure to dust, Excessive exercise, Excessive consumption of dry foods Entry of food particles into the Respiratory passages, Forcibly stopping the natural urges of the body, especially that of cough and sneeze[2]. In the pathogenesis of diseases *Kasa* occurs when *Apana Vayu* is obstructed resulting in an increase in upward motion. Vitiation of *Udana Vayu* propels the air upward and out of the body. *Vata* may however lodge in the chest, back, or head resulting in pain and repeated coughing[3]. Early intervention is necessary in case of *Kasa* as it is a potential *Nidanarthakara Vyadhi* (disease having tendency to produce secondary diseases) to produce *Kshaya*[4] (a disease characterized with severe emaciation). *Ayurveda* has many drugs that act on complaints of respiratory system in which *Karkatshringi* is one of them.

Karkatshringi (*Pistacia integerrima*) is a well-known medicinal plant from the family of Anacardiaceae. Also called crab's claws in English, this plant is native to India to India is mostly found in Himalayan altitudes of 500 to 2500 m. In *Ayurveda*, all parts of this plant have been extensively described for their therapeutic properties as *Karkatshringi* contains various important phytoconstituents that have tremendous healing potential. The different parts of the plant like leaf, bark, root, and galls contain power-packed metabolites which are substances used by the body to break down food particles. The bark and root of this plant contain terpenoids and flavonoids. Terpenoids have been found to be useful in the prevention and therapy of several diseases. *Karkatshringi* also consists of antimicrobial, antifungal, antiparasitic, and antiviral properties. Among all the parts, the galls are more used in folk medicines as they contain many health benefits. Therefore *Karkatshringi* has been selected for this paper[5].

AIM - To study the role of *Karkatshringi* in *Kasa Vyadhi*.

Karkatshringi –

Botanical Name- *Pistacia integerrima* stewart ex Brandis[6]

Family- Anacardiaceae

Synonyms - *Kakdashingi, Kakarsingi, Kakra, Kakkatasimgi. Kangar Masna, Sumak, Tungu, Tanbari, Shne, Karkarshingi*

Classical Categorization[7]

Charaka Samhita : *Kasahara, Hikkanigra-ha a, Madhura skandha*

Sushruta Samhita *: Kākōlyādi, Padmakādi*

Bhavprakasha Nighantu *: Haritakyadi*

Botanical Description- It is glabrous tree growing upto 16m, dark grey or blackish bark. Leaves-15-25 cm long, with or without terminal leaflet; leaflets 4-5 pairs, lanceolate, coriacious, base oblique. Flowers- in lateral panicles; male compact, pubescent; female lax, elongate. Fruit- drupe, globose, dry, stony, broader than long, glabrous, rugose, grey. Seeds with a membranous testa. (Flowers and fruits during March-May)[8].

Distribution-North-west Himalayas(Indus to Kumaon)at 350-2500m;cultivated in Punjab Plains[8].

Chemical Constituents[9] **–**

Gall: Chiefly, it contains resin, two isomeric triter- penic acids (pistacienoic acids A and B), tannins, a triterpene alcohol (tirucallol), beta-sitosterol, tetracyclic triterpenes, pistacigerrimones A, B, C

Seed: Alpha-piene, beta-piene, DL-limonene, 1:8-cinol, alpha-terpineol, beta- terpineol. Aromadendrin, lactonic stearoptene, caprylic acid, alpha-d-pinene, alpha and beta-phallandrene, amino acids, dihydromalyalic acid, protein.

Seed oil: Hydrocarbons, sterols, triterpenoids.

Leaves, bark: Tannins

Pharmacodynamics[10]**-**

- *Rasa- Kasaya, Tikta*
- *Guna- Laghu, Ruksha*
- *Vipaka- Katu*
- *Virya- Ushna*
- *Doshakarma- Kaphavata Shamaka*

Karma – The main actions of *Karkatashringi* are *kasahara* (antitussive), *Hikka-Nighrana* (anti-hiccough), *Vatahara*, *Vrushya* (aphrodisiac), *Grahi* (absorbent), *Deepana* (appetizer), *Jwaraghna* (antipyretics), *Balya* (physical strength promoter), *kaphanissaraka* (expectorant), *Shothahara* (swelling reducing), *Raktarodhaka* (checks bleeding), *Vatanulomana* (carminative). Gall of P. integerrima are bitter in taste, aromatic, and used as expectorant as well as tonic[11].

Indications - It is mainly used in *Kasa* (cough), *Shwasa* (asthma), *Arti* (pain), *Kshaya* (consumption), *Chhardi* (vomiting), *Trishna* (thirst), *Aruchi* (anorexia), *Urdwavata*, *Kaphavata* (diseases of *Kaphavata*), *Atisara* (diarrhea),

Raktapitta (bleeding disorder), and *Jwara* (fever).These galls are useful in dysentery, ulcers, bronchitis, fever, irritability of stomach, leprosy, psoriasis, skin diseases, vitiated conditions of *Tridosha*, dyspepsia, inflammation, pharyngitis, leucorrhea, and general debility. It is also very effective in children at the time of teething. In Pakistan, the galls of *Karkatshringi* are used for the treatment of hepatitis and liver. Roasted galls are taken with honey for cough, and diarrhea in northern areas of Pakistan (Abbasi et al 2010)[11].

Pharmacological Action[11]-

Galls of P. integerrima were reported to have significant Analgesic, Anti-inflammatory, Antimicrobial, Antioxidant, Antispasmodic, Carminative, Antiamoebic, Antigastrointestinal motility effect and Antihelmintic properties. It has been reported to have depressant, Antinociceptive, and Hyperuricemic effect disorder (Ansari and Ali 1996; Ahmad et al 2010; Ansari et al 1993). Galls of P. integerrima were also known to lower uric acid content in mice in a dose-dependent manner (Ahmad et al 2006).

Anti-asthmatic Activity: Pistacia integerrima shows Anti-asthmatic activity, inhibition of histamine release, and 5-lipoxygenase activity. Bronchial asthma is due to the contraction of smooth muscle in response to multiple stimuli resulting in the release of chemical mediators like Ach and citric acid. Pistacia integerrima acts as an expectorant and helps in the clearance of mucus from airways, lungs, bronchi, and trachea. It is also used quite well in whooping cough in children. It also manages the hiccough. In Unani system of medicine, karkatshringi is used in combination as well as single formulation. Unani physicians have been treating asthma disease for thousands of years. It is known to help in cough and asthma and it gives strength to mucus membrane. The essential oil of Pistacia integerrima (EOPI) contains tetracyclic triterpenoids and can be effective in an animal model in bronchial asthma for acute and chronic inflammatory conditions. In-vivo study of the essential oil of Pistacia integerrima on rats shows improvement of LPS-induced lung inflammation (neutrophilia), containing inhibition of protein level. While Pistacia integerrima essential oil inhibits 5-lipoxygenase, L-type voltage-gated Ca channel, and DPPH oxidation in an in-vitro research on guinea pig ileum. The aqueous extract of Pistacia integerrima exhibits antiasthmatic activity by stabilizing the mesenteric mast cell membrane. In-vitro study of Pistacia integerrima in aqueous extract acts as bronchoconstrictor by inducing histamine in the guinea pigs[12].

DISCUSSION-

A member of the Anacardiaceae family, *Karkatshringi* is a deciduous tree with the scientific name Pistacia integerrima, a horn shaped gall called a *karkatshring* found in the North-West Himalayas between 350 and 2500 metres above sea level. The Galls on the tree of *Karkatshringi* are formed by the typical type of insect Dasia aedifactor by sucking the juice from the leaves of the tree. The *Karkashringi's* galls are used to cure hepatitis and liver disease in the Pakistani region. Both *Acharya Charaka* and *Acharya Sushruta* viewed the tree as a poison with a vegetative origin in the traditional *Ayurvedic* writings. This medication causes heat, is astringent, and has a harsh taste. This medication treats *Vata, Kapha*, wasting disorders, fevers, dyspnea, obstructed breathing, thirst, cough, Hiccough, and loss of taste. *Karkatshringi* contains tannins, terpenoids, flavonoids, etc due to which it exhibits anti- pyretic, anti-microbial, anti-depressant, anti-inflammatory activity, carminative, etc[13].

Vata Dosha, which intensifies in the body and obstructs all the channels, is implicated in *Kasa*. In order to conquer this *Vata Dosha*, one needs employ the *Vishesh* qualities of *Dravya*, which possess *Ushna-Virya,* and the *Dravya Karkatshringi* is having all the characteristics to maintain this *Vata Dosha* in normalcy. *Vata* primarily has *Laghu, Ruksha, Sheet, Chal,* and *Guna* with the dominance of *Vayu Mahabhuta*. We can therefore recommend this medication in *Kasa Roga*.This *Kasa Roga* remedy was also endorsed by several *Acharyas*, either alone or in combination with other *Dravyas*. *Karkatshringi* gall, an effective expectorant, aids in liquifying thick mucus that has built up in the airways, making it simple to expel out. Its possible bronchodilatory effects open up congested airways, enhance airflow to the lungs, promote easy breathing, and widen the respiratory airways. In addition to treating upper and lower respiratory tract infections, *karkatshringi* boosts general immunity, protecting the body from recurring illnesses including allergies, sinus infections, and coughs and colds. Nature has bestowed the *Karkatshringi* plant with *Tikta* and *Kashaya Rasa, Laghu, Ruksha Guna, Ushna Virya* and *Katu Vipaka* properties. This potent herb's hot and bitter properties help to balance the *Vata* and Kapha Doshas in the body, preventing the development of many diseases[14].

Probable mode of Action of *karkrshringi*- The drugs such as, *Karkatshringi* with *Kashaya Rasa* have local *Kaphahara* action on the mucosa. This process explains the symptomatic relief from *Kasa*. *Karkatshringi* have systemic antiviral and antimicrobial actions which help in controlling the systemic infection of different origins[15]. The study demonstrates the effectiveness of Pistacia integerrima Stewart ex Brandis galls in *Kasa Roga*.

CONCLUSION-

Pistacia integerrima is a powerful herb with many constituents like pistacienoic acids A and B, tannins, beta-sitosterol, pistacigerrimones, Alpha-piene, terpineol. Aromadendrin, lactonic stearoptene, caprylic acid, Hydrocarbons, sterols, triterpenoids etc. that are helpful in treating cold, cough, fever, vomiting and diarrhea. *Karkatshringi* posses *Laghu*, *Ruksha Guna*, *Kasaya*, *Tikta Rasa, Ushna-Virya, Katu-Vipaka* and the *Dravya Karkatshringi* is having all the qualities to maintain this *Vata Dosha*. The pharmacological properties, immunomodulation and anti-microbial action activates action of *kaphahara* and *Vatahara* as described in *Ayurveda*. Hence we can recommend this drug in *Kasa Roga*.Many *Acharya's* also recommended this in *Kasa Roga* either in single form or with the combination of other *Dravyas*.

REFERENCES-

1. Ayurveda - https://www.hopkinsmedicine.org/health/wellness-and-prevention/ayurveda .
2. Karkatshringi- Pistacia chinensis Detailed Ayurvedic Qualities Dr JV Hebber-easyayurveda.com
3. https://www.ayurvedacollege.com/blog/respiratory-disease-1-kasa/ Ayurveda and the Understanding and Management of Respiratory Disease Part I: Kasa –The Understanding of Cough June 30, 2017 by Dr. Marc Halpern
4. Agnivesha, Charaka Samhita, Commentary, Charaka Samhita, Nidanasthana Apasmaranidana Adhyaya (8/19) In: Yadavji Trivikramji Acharya., editor. Varanasi: Chaukhambha Sanskrit Sansthan; 2009. P. 227. [Google Scholar]
5. Karkatshringi: Health Benefits, Uses, Dosage, Effect On Doshas, Precautions And Side Effects https://m.netmeds.com/health-library/post/karkatshringi-health-benefits-uses-dosage-effect-on-doshas-precautions-and-side June 14, 2022
6. Pandey Gyanendra Dravyaguna vijnana, Chowkhamba Krishnadas Academy, Varanasi, 4th edition 2015, P-155-156
7. Sharma Monika and Sahu Subash Gallery of medicinal plants(Dravyaguna vigyan) Thieme medical and scientific private limited, Noida up2020 P-
8. Dr. Sastry J.L.N.&Dr,M. Nesari Tanuja, A Text book of Dravyaguna Vijnana, Chaukhambha Orientalia, Varanasi, Vol-II First edition- 2018, P.No.-154)
9. Sharma Monika and Sahu Subash Gallery of medicinal plants(Dravyaguna vigyan) Thieme medical and scientific private limited, Noida up2020 P-321
10. Prof. P.V. Sharma. Dravyaguna Vidnyan (vol2). Varanasi; Chaukhamba Bharati Academy. Reprint 2005. P- 285
11. Sharma Monika and Sahu Subash Gallery of medicinal plants(Dravyaguna vigyan) Thieme medical and scientific private limited, Noida up2020 P- 322
12. Kadam PV, Yadav KN. Karanje AS, Mukadam RJ. Giram DK and Patil MJ: Karkatshringi (Pistacia integerrima): phytopharmacological review. Int J Pharm Sci & Res 2023: 14(3): 1063-70. Doi: 10.13040/UJPSR 0975-8232.14(3),1063-70.
13. https://www.iafaforallergy.com/dravya-herbs-part-a/karkatshringi-pistacia-integerrima/
14. Karkatshringi: Health Benefits, Uses, Dosage, Effect On Doshas, Precautions And Side Effects, https://m.netmeds.com/health-library/post/karkatshringi-health-benefits-uses-dosage-effect-on-doshas-precautions-and-side-effects.
15. Nayan K Subrahmanya, K. Shanthibhai Patel, Virendra Kumar Kori, and Rajagopala Shrikrishna, Role of Kasahara Dashemani Vati in Kasa and Vyadhikshamatva in children with special reference to recurrent respiratory tract infections 2https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3902595/