



THERAPEUTICS POTENTIALS OF CINNAMOMUM CAMPHORA (KAFOOR) IN SKIN DISORDERS: A REVIEW

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ABSTRACT

Kafoor or camphor is a well known Unani drug used in a number of pathological conditions including skin diseases (*Amraze Jildiya*) since centuries. Its therapeutic values are clearly defined in classical Unani literature. The source of this drug is the tree of *Cinnamomum camphora*. The tree is native of Japan, China, and Florida. In India it is found in northern hilly areas of middle and lower Himalaya. *Kafoor* is *mohallil* (resolvent), *dafe awram* (anti-inflammatory). It dissolves dry and wet pruritus by its natural counter irritant action. Due to these medicinal properties, *kafoor* is therapeutically used in skin disorders. The pharmacological actions described in Unani literature have been scientifically validated by a number of studies. The result of various scientific studies shows that camphor possesses anti-inflammatory, antiseptic and antioxidant and hepatoprotective properties but it reduces the activity of male hormone function by effect on male hormonal glands. A number of compounds are prepared using camphor such as *Marhame Kafoor*, *Marhame Raal*, *Roghane Hindi* that are being used to treat various skin diseases. There is an emphasis that availability of low cost in term of money, high cost in term of efficacy, safe in term of side effects because *kafoor* possess hepatoprotective and anti-oxidative properties also. The present review reveals that *kafoor* is a precious source of natural medicament and provides credible support for its potential use in modern medicament. The drug has shown diverse biological and pharmacological activities. It has been used in Unani Medicine and other traditional systems of medicine from time immemorial. Keeping in view the high medicinal importance of the drug in Unani Medicine, the present review provides available information on traditional uses and pharmacological properties of the Unani drug *Kafoor*.

KEYWORDS: Camphor, *Cinnamomum camphora*, *Kafoor*, Skin Disease.

INTRODUCTION

Camphor (*Kafoor*) is a white amorphous crystalline herbal substance obtained from a large green tree *Cinnamomum camphora* with height of 50-60 feet native of Japan and China. A fragrance is present on smelling its leaves which are shiny green in colour and lies alternate.^[1] Its Arabic name is *Kafoor* and *Mashtak*. It is commonly known for its medicinal value.^[2] It is famous drug and its best type is *qaisoori* which is amorphous and white and obtained from those trees which are tall and grows at those rocks which are situated at banks of sea and a habitat for panthers.^[3] According to *Ibn Sina* it is available in two types one is *qaisoori* another one is *reyahi* but *qaisoori* is better one.^[4] The etymology of *Cinnamomum camphora* is derived from the Greek word 'kinnamomon' (meaning spice). The Greeks took the word from the Phoenicians, indicating that they traded with the East from early times. Cinnamon is recorded in Sanskrit, the Old Testament, and in Greek medicinal

works, and it was used by Egyptians as early 1485 BC for embalming purposes.^[5] *Cinnamomum camphora* is a large, round; evergreen tree with broad, large-diameter, unusually strong branches and can reach up to 60-70 feet of height. The leaves are glossy, green, thin but leathery give off a camphor aroma when crushed. The stems and bark on young branches of camphor tree are bright green, maturing into a dark grey-brown, which appears almost black when wet from rain. Trunk and branch structure on older trees appear similar to mature like oaks. The flowers are ordinary, tiny, and yellow in colour.^[6]

Distribution

Cinnamomum camphora is native to China, Taiwan, southern Japan, Korea, and Vietnam, and has been introduced to many other countries.^[7] It comes from the wet land forests. Today it is grown in many countries with tropical and subtropical climate as such in India, Sri Lanka, Egypt, Madagascar, South Africa and USA.^[8]

Now a day this tree is cultivated in India on a large scale.^[6]

Unani Description

kafoor is used from ancient times for medicaments especially in field of dermatology. Many Unani physicians described its clinical importance in details like *Ibne Sina*, *Hubul Baghdadi*, *Najmul Ghani*, *Hakim abduhakeem* etc. In Arabic it is called 'Kafoor'. It is famous drug and its best type is *qaisoori* which is amorphous and white. It is obtained from those trees which are tall and grows at those rocks which are situated at banks of sea and a habitat for panthers.^[3] According to *Ibn Sina* it is two type one is *qaisoori* another one is *reyahi* but *qaisoori* is better one^[4] *Najmul ghani* mentioned in his famous book that it is white amorphous crystalline substance which produced in form of *dalli* (rock), from a plant native of China and Japan. Actually it is a combined matter of volatile oils.^[2]

Ethnobotanical Description^[1,8-10]

This large, round-canopied, evergreen tree has broad, large-diameter, unusually strong branches. It grows up to the 50-70 feet of height.

Leaves: Leaves alternate, simple, with 3 to several distinct nerves and penninerved with stout dormant buds enclosed in large, silky orbicular concave, embroccating, caduceus scales and a strong smell of camphor when crushed.

Flowers: Flowers are hermaphroditic, lies in loose axillary, terminal panicles on the ends of the twigs, creamy white in colour, actinomorphic; ovary 1, locular; ovule 1, pendulous or basal; stamens definite, free; anthers opening by valves or slits; embryo minute.

Fruits: The fruit is a round, one-seeded, fleshy drupe, 7-8 mm wide, purple-black at maturity. After ripening the fruits get black colour.

Vernaculars

The plant is known by different vernacular names in different languages, areas and traditions. Camphor Tree (English); *Kapoor* (Hindi); *Kafoor* (Arabic, Urdu); *Karpoor* (Sanskrit); *Karpooam* (Tamil, Kannad).^[1,2,9-12]

Mizaj (Temperament)

The Unani physicians unanimously described the *Mizaj* of *kafoor* as Cold and Dry in third degree.^[2-4,13-14]

Actions (*Af'aal*)

The drug camphor is described in detail in ethnobotanical and classical Unani literature literature. Some pharmacological actions are as follows:

Various actions of the camphor (*Cinnamomum camphora*) have been described such as anti-inflammatory, antiseptic, sedative, diaphoretic and anthelmintic properties on external use. While

internally it acts as antispasmodic as well as sedative^[1]. *Allama Najmul Ghani* mentioned in his famous book *Khazainul advia* that *kafoor* possesses many pharmacological actions like antipruritic to vesicles pruritus and burning due to its cold property, aphrodisiac in small dose but in large and repetitive doses, anti-inflammatory, antiallergic, anticonvulsant, antibilious.^[2]

It is anti-inflammatory, anti-vesicular,^[4] antidote, brain tonic, anti-diarrhoeal, anticephalgic and anti-inflammatory as used in stomatitis,^[6] It also possesses a very important property which keep it on therapeutic track of dermatology that is *barid* (cold) and *lateef* (resolvent) which means any skin pathology which is due to hot nature of humoral changes that are *safravi* (billious humor) and *damvi madda* (sanguinous humour) or *sue-mizaj-haar* (property of skin get deviated to hot) can be treated. It also resolves *ufoonat* (infection).^[13,15]

Uses (*Istemaalat*)

Kafoor has been described to be useful in various ailments such as headache, cold, chills, and diarrhea, sprain, joint pain and skin eruptions.^[1,2] It improves eyesight, mouth freshener, used to sedate excessive thirst, in large dose it may act on conscious level to unconscious. It is also used in fever, swelling, asthma, heart disorders, cough, spasmodic dysmenorrhoea, uterine swelling and ulcers as well as in rheumatoid swelling. It can be used in skin diseases like vesicles, inflammatory lesions and pruritus.^[2]

It is used to relieve *Suda-e-haar*, *Aashub-e-Chashm*, and it also improve conscious level of hot temperament people, nasal bleeding, ulcers in mouth, conjunctivitis, bilious diarrhea and it is best drug for increased temperature of heart.^[3] It can be used in septic skin lesions.^[4,13] Due to mild antiseptic and anticonvulsant properties it is used in skin vesicles, ulcers, bruises, bedsores and hysteria.^[6]

Muzir (Adverse effect)

It produces adverse effect on gastrum. It is aphrodisiac in high doses and *muzir* for the people having weak and cold temperament.^[2,4,14]

Musleh (Corrective)

Mushk, *Amber*, *Jundbaidster* and *Ghulqand* are used as corrective for the adverse effects of *Kafoor*.^[14]

Taxonomy^[16]

Kingdom – Plantae

Order – Laurales

Family – Lauraceae

Genus – *Cinnamomum*

Species – *C.camphora*

Common name – Kapur

Phyto-chemistry

Eugenol content also makes it valuable as a source of this chemical for subsequent conversion into isoeugenol,

another flavoring agent. Major oil constituent of *C. camphora* are camphor, linalool, borneol, camphene, dipentene, terpenol, safrole and cineole.^[17]

Scientific studies

A number of studies have been carried out on *Kafoor* (*Cinnamomum camphora*) in recent years showing that it possesses diverse pharmacological effects. Some of the important pharmacological effects are as follows.

Anti-inflammatory and antiseptic

Essential oils isolated from *Cinnamomum* species were screened for antimicrobial and anti-inflammatory activity. It was used for treating wounds, fever, intestinal worms, headache and menstrual problems.^[18] Cinnamon oil was found to be a better antibacterial agent, exhibiting rearrange of antibacterial activity against common bacteria. Hence, it represents an alternative source of natural antimicrobial substances.^[19]



Antifungal and antioxidative

A study shows that the essential oils obtained from flowers, twigs and leaves by hydro distillation method have antifungal and antioxidative properties. Among them twig oil showed total suppression and has best effect.^[20]

Hepatoprotective

Result of a study demonstrated that cinnamaldehyde is one of the most important components of camphor, which significantly decreases the interleukin-6 (IL-6), aspartate aminotransferase (AST), alanine aminotransferase (ALT) and tumor necrosis factor level in serum. These results suggest that cinnamaldehyde also has hepatoprotective effect.^[21]

Negative effect on Testosterone function

A study reveals that camphor reduced the semen volume, mass activity, testes length and live sperm percentage in rams.^[22]

Effective in genotoxicity

An experimental study carried out on Swiss albino mice demonstrated the protective effect of *Cinnamomum camphora* leaves extract in attenuating Atrazine-induced

genotoxicity and biochemical changes. The results showed that administration of extract significantly reduced the percentage of DNA damage and chromosomal aberrations induced by Atrazine (AT) an herbicide. It also regulates glutathione and lipid peroxidase enzymes.^[23]

Antidepressant

Cinnamomum camphora oil has been referred in Indian traditional medicine system for the treatment of various diseases which includes its antidepressant activity. Evaluation of antidepressant activity was done by using 3 doses of its oil in 2 models of Swiss albino. Animals treated with 3 doses of oil showed decrease in their immobility times in Forced Swim Test (FST) & Tail Suspension test (TST) which was significant when compared with control.^[24]

Anti-psoriatic

The findings of a clinical study indicated that oral UNIM-401(oral Unani formulation) and topical UNIM-403 (*A. indica* and *C. camphora*) were effective and well tolerated therapeutic options in patients with moderate-severe CPP (Chronic Plaque Psoriasis).^[25]

Anthelmintic

The aqueous extract of *Cinnamomum* camphor leaves was investigated for anthelmintic activity using tapeworms (*Raillietina spiralis*) and roundworms (*Ascaridia galli*). The result shows that aqueous extract possesses vermifugal activity and found to be effective as an anthelmintic.^[26]

CONCLUSION

The crystal of *Cinnamomum camphora* Linn (*Kafoor*) has been use since times immemorial to treat wide range of indications. It has been subjected to quite broad phytochemical, experimental and clinical investigations. Tentative studies have established its anti-inflammatory, antioxidant, antimicrobial, hepatoprotective, Negative effect on Testosterone function, antigenotoxic, antidepressant, antipsoriatic, anthelmintic activity. The Scientific studies have proved most of the claims of traditional medicines. However, further, detailed clinical research appears worthwhile to explore the full therapeutic potential of this drug in order to establish it as a standard drug.

REFERENCES

1. Kirtikar KR, Basu BD. Indian medicinal plants. Vol. III. International Book Distributors, Dehradun, 2004; 2152.
2. Najmul-Ghani. Khazainul Advia. Idara Kitab-us-Shifa, New Delhi, 2011; 999-1003.
3. Ibne Hubal. Kitabal Mukhtarat fit Tib (Urdu translation). Vol. II. CCRUM, New Delhi, 2005; 170.
4. Ibn Sina. Al-Qanoon fit Tib. Vol. II. Matba Munshi Naval Kishore, Kanpur, 1417H, 65-124.

5. Orwa C, A Mutua, Kindt R, Jamnadass R, S Anthony. Agroforestry Database: a tree reference and selection guide, 2009. version 4.0 (http://www.worldagroforestry.org/sites/treedbs/tree_databases.asp).
6. Gilman E, Watson, document submitted to Institute of Food and Agricultural Sciences, 1993 University of Florida, Cited at <http://edis.ifas.ufl.edu>.
7. Li, Shugangi, Li, Xi-wen Li, Jie Li, Puhua Huang, Fanan Wei, Hongbin Cui & Henk van der Werff 'Cinnamomum camphora'. Flora of China. Missouri Botanical Garden, St. Louis, MO & Harvard University Herbaria, Cambridge, MA. Retrieved 27 March, 2013; 7.
8. Garg, Nidhi; Jain, akhil 'Therapeutic and medicinal uses of Karpura - a review'. *International Journal of Science and Research*, 2015; 6(4): 2319-7064.
9. Prajapati ND, Purohit SS, Sharma AK, Kumar T. Handbook of medicinal plants. Published by Agrobios, Jodhpur, 2005; 142.
10. Chopra RN, Nayer SL, Chopra IC. Glossary of Indian Medicinal Plants. Publication and Information Directorate, CSIR, New Delhi, 2009; 65.
11. Khare CP. Indian medicinal plants. Springer (India) Pvt Limited, New delhi, 2007; 148-49.
12. Nadkarni AK. Indian materia medica. Vol. II. Popular Parkashan, Mumbai, 2009; 250-253.
13. Ibn Rushd. Kitabul Kulliyat. CCRUM, New Delhi, 1987; 326-27.
14. Abdul-Hakim M. Bustanul mufradat. Fareed Book Depo, Delhi, 1999; 416-17.
15. Razi, ABMBZ. Kitabul Mansoori (Urdu translation). Vol. V. CCRUM, New Delhi, 1991; 200.
16. Singh, Richa; Javed, Talha 'Cinnamomum camphora (Kapur): A Review'; *Pharmacognosy Journal* march-april, 2012; 28(4): 1-5.
17. Chelliah DA. Biological activity prediction of an ethnomedicinal plant *Cinnamomum camphora* through bio-informatics. *Ethnobotanical Leaflets*, 2008; 12: 181-190.
18. Maridass M, Victor B. Ethnobotanical uses of *Cinnamomum* Species, Tamil Nadu, India. *Ethnobotanical Leaflets*, 2008; 12: 1-6.
19. Rangari, P. 'Screening of antibacterial sensitivity of essential oils of Camphor and Cinnamon'. (Shodh Anusandhan Samachar), 2011; 22-26.
20. Ho CL, Chen Wang, Su YC. Essential oil compositions and bioactivities of the various parts of *Cinnamomum camphora* Sieb. var. (Journal of essential oil research) 2009; 31(2): 77-96.
21. Johari H, Abedini M, Fallahi S. The effect of camphor (*Cinnamomum camphora*) on concentration of liver. *International Journal of Latest Research in Science and Technology* 2015; 4(1): 111-113.
22. Dawood, TN Effect of adding *Cinnamomum camphora* on the testosterone hormone and reproductive traits of the Awassi rams'. *Kufa Journal for Veterinary Medical Sciences*, 2014; 5(2): 36-45.
23. Asmaa S. Salman, Ayman A. Farghal, Souria M. Donya, Fawzia Shata. Protective effect of *Cinnamomum Camphora* leaves extract against atrazine induced genotoxicity and biochemical effect on mice. *Journal of American Science*, 2012; 8(1): 190-196.
24. Jay Rabadia, Satish.S, J.Ramanjaneyulu, Narayanaswamy. An investigation of anti-depressant activity of *Cinnamomum camphora* oil in experimental mice. *Asian Journal of Biomedical and Pharmaceutical Sciences*, 2013; 3(20): 44-48.
25. Neena Khanna, Mani Kalaivani Tamanna Nazli, Khalid Mahmud Siddiqui, & Rais-ur-Rahman; Non-inferiority randomized controlled clinical trial comparing Unani formulation & psoralen plus ultraviolet a sol in chronic plaque psoriasis. *Indian J Med Res.*, 2018; 147: 66-72.
26. Haque R, Mondal S, Ghosh P. Investigation of *in vitro* anthelmintic activity of *Cinnamomum camphora* leaves. *Int J Drug Dev & Res.*, 2011; 3(1): 295-300.