
ROLE OF CAMPHOR IN ORAL HEALTH CARE

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ABSTRACT

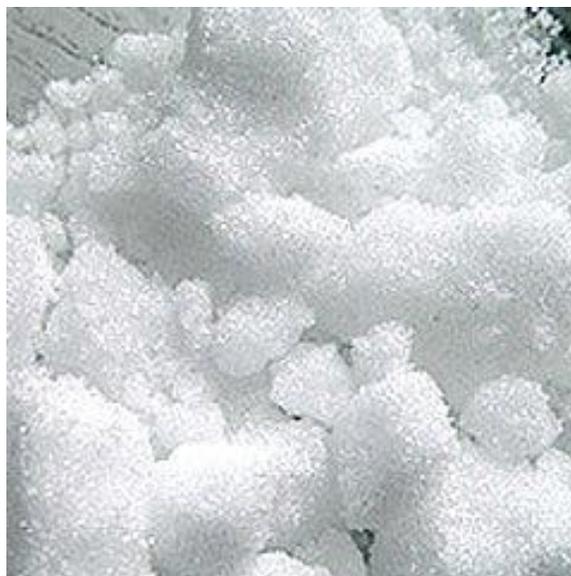
Camphor is a waxy, flammable, white or transparent solid with a strong aromatic odor. Camphor is the granular crystal produced through the refinement of the branch, trunk, leaf and root of a plant *Cinnamomum camphora* of the family Lauraceae. It has a variety of natural sources and is an effective component of many pharmacological preparations. It is used for its scent, as an ingredient in cooking, as an embalming fluid, for medicinal purposes, and in religious ceremonies. It is an organic compound of penetrating, somewhat musty aroma, used for many centuries as a component of incense sticks. Modern uses of camphor have been as a plasticizer for cellulose nitrate and as an insect repellent, particularly for moths. Refined camphor can also be obtained from unrefined camphor through sublimation and refinement. Since it is quite volatile, camphor should be packed and sealed for storage. The aim of this review is to summarize and analyze the vast effects of camphor on oral health, along with its mechanisms and also its toxic effects above normal therapeutic levels.

key words: crystal, aromatic, *Cinnamomum camphora*, embalming fluid.

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INTRODUCTION

Camphor is found in wood of the camphor laurel (*Cinnamomum camphora*), a large evergreen tree found in Asia (particularly in Sumatra, Borneo and Taiwan) and also of *Dryobalanops aromatic a*, again to the Bornean forests. In China, the tree *Cinnamomum camphora* is mainly produced in the places to the south of the Yangtze River and in the southwest parts, among which Taiwan gives the greatest yields, and the camphor produced there is of good quality. *Cinnamomum camphora* is a large evergreen tree that grows up to 20–30 meters tall. The leaves have a glossy, waxy appearance. In spring it produces bright green foliage with masses of small white flowers. It produces clusters of black berry-like fruit around one centimetre in diameter. It has a pale bark that is very rough and fissured vertically. The *D. Aromatica* tree, found in Sumatra and Borneo, grows to an enormous height, often over 100 feet, and trunk 6 or 7 feet in diameter.



It also occurs in some other related trees in the laurel family, notably *Ocotea usambarensis*. Dried rosemary leaves (*Rosmarinus officinalis*), in the mint family, contain up to 20% camphor. It can also be synthetically produced from oil of turpentine. A major source of camphor in Asia is camphor or basil.

Camphor is a terpenoid. It is a pure compound white, waxy solid that melts at about 178 degree celsius-179 degree Celsius. It is dextrorotatory. Camphor has been used for many centuries as a culinary spice, a component of incense, and as a medicine. Camphor is also an insect repellent and a flea-killing substance. It is also known to cure diseases such as asthma, whooping cough, bronchitis, pulmonary congestion, hysteria, delirium, insomnia, epilepsy, gout, rheumatism, nasal congestion, etc.



USES OF CAMPHOR IN ORAL HEALTHCARE

Oral diseases impact our quality of life and may lead to systemic and threatening diseases. In this era of modern medicine, there has been increased usage of modern medicinal techniques involving the usage of antibiotics, antipyretics etc. But the basis of all medicine lies in its botanical foundation which has increased proportions of camphor, neem, tulasi etc, which has high medicinal importance.

DENTAL CARIES

Caries is caused by bacterial acid production in tooth plaque, which can cause deep localized lesions if it remains too near the tooth for any length of time. If left the bacteria then may penetrate the tooth further and progress into the soft pulp tissue. Untreated dental caries can lead to incapacitating pain, potential tooth loss and loss of dental function. The development and progression of dental caries is due to a number of factors, specifically bacteria in the dental plaque (particularly *Streptococcus mutans*) on susceptible tooth surfaces and the availability of fermentable carbohydrate on of tooth decay.

TANDPYN DRUPPELS

A clear brown colored liquid preparation whose composition contains: Spirits of camphor, Opium tincture, Capsicum tincture, Spirits of chloroform, Chloroform, Camphor, Catechu tincture, Ethanol. The camphor, capsicum tincture and spirits of camphor have an irritant action, and camphor also has a mild local anaesthetic action and hence relieves dental caries pain and sensitivity.[1]

Camphor can be ground together with yellow lead and Chinese honeylocust fruit (*Fructus Gleditsiae*) in equal quantities into powder and made with honey into pills for insertion into cavities which relieves pain.[2].The Neodymium: yttrium aluminum garnet (Nd:YAG) dental laser has been cleared by the United States Food and Drug Administration (FDA) for marketing in intraoral soft tissue treatment and it contained small amounts of camphor, which in virtue of its vapour properties help edincarious pain relief[3]. In dentistry, it is prepared with parachlorophenol 35% (and 65% camphor) and used as an antibacterial for infected root canals.[13]

PERIODONTITIS and PULPITIS:

In a study conducted , A total of 30 patients with chronic periapical periodontitis were selected from outpatients, and 10 cases each were randomly picked out to treat by sealing with formocresol, camphorated phenol and Ya Kan respectively. All three products had a significant effect on relieving chronic periapical period on titis.[4].

Gum paints are combination of antiseptics and tanning agents which precipitate proteins but do not penetrate cells thereby affecting only the superficial layer making it stronger and preventing exudation. By a gentle massage over the gingiva, it not only relieves gingival pain but also strengthens the ridge. Arofil gum paint,one which contains camphor 0.2% provides this function effectively.[5]

Another study investigated the long-term (1-4 years) outcome of the endodontic treatment of teeth with apical periodontitis lesions where apical enlargement was done and the canals irrigated with camphorated paramonochlorophenol (CPMC) paste. Overall results showed that 76% of the teeth healed, 19% were healing, and 5% had not healed. Most healed cases (75%) or

failed cases (80%) were already evident at 2 years, demonstrating its pulpal soothing effects [6]. Periodontal Camphor Mono-Chlorophenol, also known as CMCP, is an active disinfectant for the treatment of infected root-canals & periapical infections.[7]

The combination of allantoin, camphor, and phenol is used to treat pain, itching. Camphor seems to stimulate nerve endings that relieve symptoms such as pain and itching when applied [8,12].

DENTAL PLAQUE:

Pawar et al in his study explained a dentifrice / herbal tooth powder which was comprised Acacia catechu, Menthol and camphor in the proportion 91%, 2.7% and 6.3% respectively. The powder of Acacia catechu was used to remove tartar, plaque, stain and in cleansing and polishing tooth surface without producing any abrasion whereas menthol and camphor were used as flavouring agents. A clinical study on this herbal dentifrice , reported 87-95%, 70-72% and 80-95% reductions in plaque,gingivitis and dental calculus respectively, in about 15 days of treatment .[9]

ORAL ULCERS

Camphor can be ground together with realgar in equal quantities into powder and stirred well with sesame oil for application to treat ulcers., e.g., Xiong Nao San. [2] Camphor has a cooling and a soothing effect which relieves ulcerative pain immediately.[5,4].

HERPES SIMPLEX LABIALIS

Herpes simplex labialis, also known as cold sores, is a common cause of perioral discomfort. Herpes simplex labialis is usually caused by the herpes simplex virus, type 1 (HSV-1), whereas the most common causative agent of genital herpes is herpes simplex, type 2 (HSV-2). There are five stages of a cold sore, from initial manifestation to complete healing. The patient's first sign is the prodromal stage, experienced by 46% to 60% of patients. This stage consists of tingling, itching, inflammation, erythema, hypersensitivity, and/or soreness in the exact location where the lesion will erupt. In patients with recurrent herpes simplex labialis, the location is often the same from episode to episode, most commonly on the mucocutaneous junction of the upper and/or lower lip, known as the vermilion border.[15]

FDA-approved protectants (e.g., allantoin, calamine, petrolatum, zinc oxide, and cocoa butter) soften the skin to prevent cracking and also relieve dryness. Some products that include these ingredients are Anbesol Cold Sore Therapy (64.9% white petrolatum, 20% benzocaine, 3% camphor, 1% allanto in). [10, 14]

CONCLUSION

Camphor is a well-established folk remedy, and is commonly used for pulpitis,periodontal issues,dental pain and herpes simplex labialis. These traditional medicines are not being used much these days. But it is essential that it is bought back into usage as they are absolutely effective with minimal side effects.In Traditional Medicine, camphor has a long history of use for prevention and in assisting the body to heal itself in gum and tooth disorders. Creating awareness on this rich history of traditionally available herbal medicines will help minimize oral as well as other systemic problems and treating them effectively also.

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