

## Letter to the Editor

# Essential Oils

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### Dear Editor,

Essential oils like eucalyptus (1,8 cineole), camphor (1,8 cineole), menthol, lavender, thuja, tea tree oil to name a few are found in pain balms, tea, aroma therapy, Unani medicine, used in cultural rituals and festivals, herbal and ayurvedic medicine, mosquito repellent, cleaning liquid, Vap air room fresheners, Vapessence for smoking among other uses. Some of their commercial products includes Vicks vapour rub, Tiger balm, Patanjali products, Iodex, Zandu balm, Amrutanjan from India, Axe oil, eucalyptus tea to name a few in China, Vicks vapour rub, inhalers, shampoos, etc from USA, and Canada.

### *What are essential oils?*

Essential oils are called so not because they are essential to the human body but because they are derived from the essence of plants. Essential oil is a concentrated hydrophobic liquid which contains volatile aroma compounds derived from plants. The refreshing property of essential oil is because it has a strong aroma which stimulates the limbic system, the dopaminergic system and the cingulate gyrus of the brain.

### *Uses of essential oils*

Essential oils (EO) play an important role in the protection of plants. They contain a variety of metabolites which slow down the

growth of bacteria, yeast and molds [1]. Components of essential oils are active against the membrane and the cytoplasm of pathogenic organisms. Essential oils are also widely used in food preservation as synthetic preservatives have attracted negative publicity during recent years [2]. Essential oils may not be potent enough as single compounds and may cause negative effects if added in sufficient amounts to exert significant action. EO has shown antibacterial activity against *E.coli*, *S. typhimurium*, *L. monocytogenes*, *B. cereus*, *S. aureus* and *S. dysenteria* [3]. EOs may have a number of other uses ranging from cancer suppression, reducing atherosclerosis and thrombosis, as antioxidants, as antidiabetic agents, as agents which enhance skin penetration to increase transdermal drug delivery, and for aroma and massage therapy [4].

### *Addictive potential of essential oils*

Inhalant use is the intentional inhalation of vapors from commercial products or specific chemical agents with the objective of achieving intoxication [5]. Some studies suggest that inhalants are among the most common and pernicious forms of substance abuse [6] and may be among the least studied among the major drugs which may cause dependence [7]. The National Institute on Drug Abuse of the United States uses the term 'inhalants' to refer to a variety of substances which are rarely taken by route other than by

inhalation [8]. Inhalants are divided into four major groups, volatile solvents, aerosols, gases and nitrites. The literature is divided about whether essential oils can be addictive. A youth website describes the condition of being obsessed with EOs [9]. Non-scientific websites describe the condition of essential oil dependence but our search did not come across descriptions in the scientific literature. Signs and symptoms of addiction have been described for a number of EOs ranging from Vicks vaporub, The book on Essential oil safety written by Robert Tisser and Rodney Young describes complaints of seizures induced by eucalyptus oil and camphor in young children and even adults [10].

#### *Adverse effects of EOs:*

Certain EOs has been shown to cause irritation of mouth tissues when used in root canal treatment which may be related to membrane lysis and surface activity [11]. Some EOs have caused allergic contact dermatitis in people who use them frequently [12]. A review published in 2000 examines the adverse effects of herbal drugs in dermatology [13]. Adverse effects range from photosensitization, to depression of the central nervous system by eucalyptus oil. Some EOs may have estrogenic and anti-androgenic properties. Gynecomastia in prepubertal boys was associated with application of products containing lavender and tea tree oils [14].

In conclusion, further information about essential oils, their uses, adverse effects and addictive potential is required. The non-scientific literature makes a lot of claims about EOs which should be scientifically studied and evaluated.

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