

Effect of Aromatic Plants on the Prevention of Tumor Development

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DESCRIPTION

A large part of the population in many poor nations relies on traditional practitioners and their arsenal of medicinal plants to fulfill their health-care requirements. Despite the fact that modern medicine coexists with such ancient practices, herbal remedies have frequently retained their appeal for historical and cultural reasons. Commercially, such goods have grown more readily available, particularly in industrialized nations. Ingredients are occasionally promoted in this modern environment for applications that were never considered in the ancient medical systems from which they came. Use of ephedra for weight loss or sports performance enhancement is one example. While herbal medications are subject to strict production requirements in certain countries, this is not the case elsewhere. In Germany, for example, herbal products sold as 'phytomedicines' must meet the same efficacy, safety, and quality requirements as other pharmacological products. In contrast, in the United States, the majority of herbal products on the market are marketed and regulated as dietary supplements, a product category that does not need pre-approval of items based on any of these criteria.

Oral Squamous Cell Carcinoma (OSCC) is one of the most common oral malignancies, with the risk increasing in those under the age of 40, particularly in industrialized nations. Micronutrient deficits, persistent trauma, poor dental hygiene, and particular microorganisms such as viruses are also potential risk factors. Despite the fact that recurrence is prevalent, the primary treatment for OSCC is surgery and radiation. Herbal medications are plant-based items that are used as conventional and homoeopathic medicines as well as food additives. The medicinal qualities of these plants are now being extensively researched. It is suggested that medicinal herbs have the ability to treat a variety of ailments, including cancer, allergies, and diabetes. People who eat a diet high in fruits and vegetables are less likely to acquire serious malignancies, according to research. As a result of the demand for novel treatments, researchers are looking for anti-cancer properties in fruits and vegetables.

Curcumin is a phytopolyphenolic pigment obtained from turmeric *Curcuma longa* that is commonly used as a flavouring agent in cuisine [1,2]. According to one study, this plant

stimulated free radical phagocytosis and prevented lipid peroxidation. Curcumin is thought to slow the multiplication of malignant cells. It inhibits tumor angiogenesis, hence reducing tumour development and metastasis. Another study found that curcumin inhibited the formation of COX2 in human colon cancer cells. The ethanol extract of turmeric, like topical curcumin, entirely treated the cancer symptoms, according to the researchers.

Ginger (*Zingiber officinale* Roscoe) is a popular spice, especially in Asia, and it includes a lot of bioactive components that are good for you. *In vitro*, ginger oil scavenges superoxide and hydroxyl radicals and prevents lipid peroxidation. It significantly reduces acute inflammation caused by dextran and carrageenan [3]. Because of these characteristics, ginger is an efficient drug for reducing UV-B-induced generation of Reactive Oxygen Species (ROS) and COX2. As a result, it has the potential to be employed as a therapeutic agent in UV-induced skin disorders.

The stigma of the *Crocus sativus* flower is used to make saffron. Saffron has been reported to be an antioxidant, anti-cancer, anti-inflammatory, antidepressant, antihistamine, and memory enhancer, with anti-cancer actions validated *in vitro* and in animal models. Cinnamon is the outer bark of an evergreen tree of the Lauraceae family. Its extract includes a variety of active ingredients, including essential oils and tannin. They perform a variety of biological activities, including antioxidant, antibacterial, anti-inflammation, anti-diabetic, and anti-tumor action. In an animal melanoma transplantation model, cinnamon extract significantly reduced tumor development [4,5].

CONCLUSION

Aromatic plants, such as cinnamon, contain eugenol, a chemical component of the allylbenzene class. Recent research on animal models has verified eugenol's anti-cancer activity against numerous cancer cell lines. Furthermore, the molecular mechanism of eugenol-induced apoptosis in melanoma, skin cancers, osteosarcoma, leukaemia, gastric cancer, and mast cells is well described. As previously stated, these medicinal plants have considerable anti-cancer capabilities, although there have been little investigations on OSCC. As a result, further investigations are required to quantitatively examine the anti-cancer impact of

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curcumin, ginger, saffron, and cinnamon alone and in combination on an oral squamous cell carcinoma cell line.

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