

Medicinal Importance of Herbs & Spices

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Scope

Traditionally herbs and spices were used as fragrant, flavor, delicious, aromatic and medicinal plants. Everyone can smell, eat, bath in, and heal with them. One of the most important uses of herbs and spices is cancer fighting.

The US Food and Drug Administration (FDA) define a spice as an "aromatic vegetable substance whose significant function in food is "seasoning rather than nutrition" and from which "no portion of any volatile oil or other flavoring principle has been removed [1]. But herbs are defined as leafy and green part in non-woody plants of temperate climate zone. When fresh, herbs are more fragrant, but spices are mostly stronger as dried powders. In some cases both herb and spice may come from the same plant. Dill is an example; the seeds from the dill plant are spices, while the stalk of the plant is herb this is because herbs have always been recognized as the green, leafy products.

Frequently these plants are simply referred to as medicinal plants, disregarding their specific features, due to the complexity and overlapping uses of active ingredients and the great number of plant species involved in classification for herbs and spices.

"Medicinal and Aromatic Plants" (MAPs) term is more recently used, in a slightly broader sense, distinguishing the fragrant constituents-containing group of medicinal plants.

As cancer is considered as pernicious enemy to humans who often are the loser in this war, "Mother Nature" produced many herbs and spices as natural agents for cancer fighting.

Apiaceous plants, worldwide distributed spices are rich in chemo preventive and therapeutic agents. Examples of Apiaceous phyto constituents are coumarins and flavonoids compounds like psoralen, 5-methoxypsoralen (5-MOP), 8-methoxypsoralen (8-MOP), and apigenin that could inhibit CYP1A2-mediated carcinogen activation. Anethole, a key phenolic aromatic compound in anise volatile oil and is an estrogen receptor, could inhibit cell survival and modulate apoptosis in human breast cancer cells, so it is considered as viable an anti-cancer agent [2]. Cumin showed chemo preventive and anti-carcinogenic properties. The former activity is due the ability of cumin to scavenge free radicals and to enhance the liver's detoxification enzymes, in addition to modulation of carcinogen metabolism. Concerning the latter activity, it was reported that different doses of cumin seeds could reduce significantly both uterine cervix tumor burden in mice and the incidence of induced hepatomas in Wistar rats that affirm its anti-carcinogenic properties [3].

Turmeric, *Curcuma longa L.* (Zingiberaceae) a common spice used traditionally for cancer fighting.

Numerous studies have reported the valuable effects of curcuma in the prevention of cancer [4,5]. Curcumin a major phyto constituent of

curcuma could protect DNA damage and exert antimutagenic/ anticarcinogenic properties at low levels (0.1–0.5%) in the daily use diet [6]. It has the capacity to intervene in the initiation and growth of cancer cells and tumors, and to prevent their metastasis. Curcumin renders chemotherapy more effective as it increases the sensitivity of cancer cells to certain chemotherapeutic drugs. It is also effective against pancreatic cancer through down-regulation of NF- κ B and COX-2 [7].

Nutmeg essential oil possesses an excellent anti-carcinogenic protecting activity. The essential oil interferes with the activities of the host enzymes associated with activation and detoxication of xenobiotic compounds, including chemical carcinogens and mutagens.

The essential oil of nutmeg also reduced the activities of hepatic carcinogen-metabolizing enzymes where in Swiss albino mice, Nutmeg oil significantly induced the cytochrome P450 level, reduced Aryl hydrocarbon hydroxylase activity and elevated glutathione-S-transferase activity in hepatic carcinoma [8].

Sesquiterpenes and phenolic compounds are major constituents in clove oil showed potent anticarcinogenic activity. These compounds reported to induce the detoxifying enzyme, glutathione-S-transferase, in mouse liver and small intestine cancerous cells [9]. Other constituents like triterpenes in cloves, act chemo preventive agents against breast cancer as they have the ability to enhance apoptosis and prevent cellular proliferation [10].

The ultimate goal of this editorial article is to highlight the role of certain spices and herbs as dietary phytochemicals in chemoprevention of cancer diseases. All in all enjoy your life with aromatic medicinal spices and herbs.

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