

PERSPECTIVES ON THE USE OF HERB CLOVES IN THE PRACTICE OF A FAMILY DOCTOR

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Cancer is one of the leading causes of death in the world. About 30% of cancer deaths are caused by five major behavioral and nutritional risk factors. Therefore, at least one third of all cancer cases are preventable. Prevention offers the most cost effective long term strategy for fighting cancer. Changing your diet is another important approach to fighting cancer. There is a link between being overweight and obesity and many types of cancer, such as cancer of the esophagus, colon and rectum, breast, uterine lining, and kidney. Eating large amounts of fruits and vegetables can have a protective effect against many cancers. Conversely, excessive consumption of red meat and canned meat may be associated with an increased risk of colorectal cancer. In addition, a healthy diet that helps prevent diet-related cancers reduces the risk of developing cardiovascular disease. Thus, taking into account the peculiarities of national nutrition and studying natural food products, it is possible to identify biologically active substances with anticarcinogenic activity. Spices are regarded as the golden compounds because of their major dietary phytochemicals properties (suppress inflammatory process, hyperproliferation and initiation of carcinogenesis) which makes spices the most prominent natural products that could help counter the growth of cancer all over the world. Clove which has the highest content of antioxidant amongst natural products has several health benefits and functions. Traditionally the practise of herbal medicine and natural products was linked to traditional healers that passes the recipes though generations, but today, herbal remedies are available and distributed in many health stores throughout the world with many forms of preparations and ways of administration. Despite the popular use of natural products and medical plants, there are many challenges associated with them regarding reliability, safety, lack of support by scientific evidence, and their potential misleading or anecdotal health advice. Medical plants are often likely to cause adverse effects or interaction with approved drugs, and moreover many plants can be very toxic thus requiring regulation by health authorities. As of today, clove like many other medical plants are still broadly used. It is estimated by the world health organization that 80% of the population of some countries in Asia and Africa are using herbal medicines for some health care aspect. Research over the last decade has shown that several micronutrients in fruits and

vegetables reduce cancer. The active components of dietary phytochemical that most often appear to be protective against cancer are derived from spices and believed to suppress the inflammatory process that lead to transformation, hyper proliferation and initiation of carcinogenesis as well namely, angiogenesis and metastasis.

Aim is to evaluate anticancer potential of the herb Clove according to the results of the study antiproliferative capacity and cytotoxic activity (*Syzygium aromaticum*).

Materials and methods. The study was conducted by Institute of Cytology and Preventive Oncology, IILM Academy in India. Antiproliferative capacity and cytotoxic activity of Clove against different kinds of cancer cell lines of various anatomical derivations were evaluated. The herb is milled into fine powder and water, ethanol and essential oil are extracted. Water, ethanol and oil extracts were screened for antiproliferative activity against cervical cancer cells, prostate cancer, breast cancer, esophageal cancer cell lines, along with normal human peripheral blood lymphocytes.

Results. The main finding of the present study is that Clove has different capacity to cause cell death in the various cancerous cell lines of human origin. The agent found in the clove extract is capable of killing cancer cells in the human body by proliferation-inhibiting and apoptosisinducing (causing programmed cell death) effects. No cell death was observed in normal human cells by clove oil extract at higher concentration. Clove oil has two major compounds eugenol and β -caryophyllene, which consists 79% and 13% of the oil respectively. The cytotoxic effect of oil extract found in different cancer cell lines is due to the presence of eugenol. Among these two β -caryophyllene had no cytotoxic effect whereas both clove oil and eugenol demonstrates cytotoxicity. It was found that the cytotoxic effect of eugenol is associated with apoptosis. I was demonstrated that clove oil extract induced change in nuclear morphology. The study showed eugenol treated melanoma cells exhibits cytotoxic activity induced by apoptosis.

Conclusions. Therefore the study open up the possibility that natural compound found in clove may be used to develop new treatment modality for esophageal cancer. Eugenol shows maximum cytotoxic effects against esophageal cancer cells this may be because after ingestion, sequence wise interaction between eugenol and cells in human body, esophageal cells are the first one in comparison to the other used cells. It has been showed curcumin induced cell death in esophageal cancer. The work demonstrates that the eugenol present in clove oil extract is an effective cytotoxic agent for different type of cancer cells and it is endowed with apoptotic inducing capability. These results suggest that eugenol may constitute a potential antitumor compound against different kind of cancer cells depending up on their sensitivity towards it.