Natural Phytochemicals: A Chemopreventive Approach

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ABSTRACT:
Phytochemicals can block initiation or reverse the promotion stage of multistep carcinogenesis. They can also halt or retard the progression of precancerous cells into malignant ones. Cancer is the second leading cause of death, where one in four deaths is due to cancer. According to a recent report by the World Health Organization (WHO), there are now more than 10 million cases of cancer per year worldwide. In 2014, there will be an estimated 1,665,540 new cancer cases diagnosed and 585,720 cancer deaths in the US. Cancer remains the second most common cause of death in the US, accounting for nearly 1 of every 4 deaths. Numerous phytochemicals derived from edible plants have been reported to interfere with a specific stage of the carcinogenic process. Phytochemicals can directly scavenge free radicals and can also generate "chemical or electrophilic stress signals" that trigger proteins related to various cellular signalling pathways. Understanding of these compounds in terms of their chemical and biological functions and beneficial effects on human health is essential. The present study focused on the medicinal plants having promising sources for biologically active compounds having anticancer properties. The phytochemicals have great potential not only for disease prevention, but also for improving the recovery from certain diseases and cancers by regulating various types of cellular damage caused by ROS. The goals of using them as sources of phytochemicals based therapeutic agents and their role in the discovery of leads for the development of conventional drugs for the treatment of cancer.

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