



The role of medicinal plants in the prevention and treatment of cancer through their photochemical compounds

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Result

About two-thirds of the anticancer treatments are extracted from plants (Dolan S,2005) that are divided into several classes (Henry L,2005) depending on their pharmacological effect: antimetabolites (alkaloid vinca), podophyllotoxins (etoposide), and taxanes (paclitaxel) and etc. (Zaid H et al, 2012)

Maram and colleagues showed that the extracts of *Aloe vera* (*A. vera*) and *Calligonum* could have an antitumor effect against HepG2 cells Shalabi M et al., 2015. nadia and colleagues showed that the extract of *Crataegus azarolus* demonstrated strong cytotoxic against HCT-116 and HT-29 human colorectal cancer cell lines. (Mustapha N et al., 2016) as a crucial problem in chemotherapy and radiotherapy is multidrug resistance (MDR). (Wu CP et al, 2011). The overexpression of ATP-binding cassette (ABC) transporters that natural products can resolve this issue (Sak K, 2012) eg, ginsenoside, curcumin, quercetin (Zhang Q-Y et al, 2018). An in vitro study showed *B. serrata* extract in combination with Dox will help treatment of hepatocellular cancer and reducing side effects of Dox (Mazzio EA et al., 2017)

Conclusion

With all these findings showed that natural compounds in plants play an important role in improving the antitumor function of existing cancer treatment methods and by reducing the side effects of ordinary methods such as chemotherapy and radiotherapy thus medicinal plants and their bioactive compounds can be candidate of preventive and for treatment of cancer in a lonely manner or in nano based structured as a drug delivery method.

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Abstract

Cancer that caused by genetic mutations in DNA is extremely important as one of the leading causes of death in the world. Due to the side effects of chemotherapy drugs, alternative methods from natural sources that reduce the side effects of these drugs and increase the effectiveness of treatment can be a good candidate for the prevention and treatment of cancer. Therefore. Routine chemotherapy and radiotherapy treatments used in the cancer treatment process have many side effects. Therefore, research has shown that medicinal plants due to having antioxidant compounds and phytochemical compounds with different mechanisms inhibit the growth and proliferation of cancer cells and do not have serious side effects such as chemotherapy and radiation therapy, so in the prevention and treatment of cancer They have received a lot of attention.

Introduction

However The goal of chemotherapy is to be as effective as possible with tolerable side effects, since the dose of chemotherapy will be toxic to the cancer cells as well as to the normal cells. Researchers mentioned that herbal-based medicines are found to be one of the best choices for treating and/or preventing incidence of cancer. (Ahmad R et al., 2016) This is mainly because of the varieties of active substances that plants contained which work against many types of cancers in several mechanisms. (Lichota A, Gwozdziński K, 2018). These compounds can be extracted and can be used alone or in combination with other anticancer treatments. In comparison with synthetic drugs, these natural compounds are found to be naturally available, cheaper, and easy to administered orally and have low or minimal side effects, and they are found to be rich of various biologically active chemotype that are responsible for these effects. (Zaid H et al., 2012)

Method & Material

After searching for the keywords "medicinal plants" and "cancer" in international information sources in the Pub med and Google Scholar databases, more than 1800 articles from 2000 until now were found. In this study, based on whether the studied plants are native to Iran or there is public access to them and their effect on high prevalence cancers mediated by active compounds has been investigated, more than 10 articles have been studied.