

# Natural Anticancer Agents:- A Review on the Medicinal Potentials of Plants

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## I. INTRODUCTION

Approximately 6 million new cases per year are diagnosed with cancer worldwide. Cancer is a crucial disease responsible for enormous mortality. Human body is composed of millions of cells. Normally all multicellular organisms including plants and animals cells grow and divide for a limited period of time and then show apoptosis by stopping growth and division. An uncontrolled growth and division has been observed in the cancerous cells due the damage in the genetic material of cells. Apoptosis plays an important role in the growth of humans and to sustain a healthy immune system. Caspases, proteolytic enzymes mediate Apoptosis by triggering cell death through the breakdown of few specific proteins present in the cytoplasm and nucleus. Caspases exist in all cells as inactive precursors, or procaspases, which are usually activated by cleavage by other caspases, producing a proteolytic caspase cascade. Subsequently, they only reproduce themselves as necessary to replace defective or dying cells. Sometimes this cellular reproduction and growth goes beyond control due to the damaged and defective cellular DNA which give rise to Cancer. There are many factors such as Genetic, environmental and chemical factors, such as exposure to tobacco smoke or radiation can produce a chain of events that result in cellular DNA deterioration that lead to cancer. Sometimes the defective genetic material is inherited from parents to children. These defects in genes or in genetic material, which actually organize the mode of actions of cells, particularly their growth and division cause cancer. Numerous synthetic anticancer drugs are available in the market, but with their multiple side effects that are the major drawbacks in their effectiveness. Chemotherapy has been established as the most important approach for treating various cancers. However most of the currently used chemotherapy drugs are identified to develop resistance, thus show toxicity against normal cells and many other side effects. Treatment strategies rely on the type and stages of cancer. Major treatment protocols include Surgery, Chemotherapy, Radiation therapy, Hormone therapy etc. Nowadays treatments have been improvised and in fact have increased the survival rate positively. Allopathic medications, Chemotherapy and radiation therapy give rise to an array of traumatic and unpleasant side effects such as vomiting, fatigue, dry mouth, anemia, hair loss, impotency, panic attacks, high blood sugar, dizziness, insomnia, diarrhea, constipation, hostility, depression, mania, seizures, coma, swelling, confusion, fainting and death. Therefore, cancer treatment and drug development for this disease still seems to be a major clinical challenge. Due to the numerous side effects of allopathic medicines, plant based medicines and alternative medicines have now drawn attention as an efficient source of anticancer agents and are extensively used because of their accessibility, affordability and modest to no side effects. According to WHO, half of reported cancer cases are preventable, by using medicinal plants for cancer treatment as well as to prevent the deaths caused by the disease. The World Health Organization (WHO) has also supported the use of these traditional medicines which are effective and non toxic. Furthermore, the plants are actually very easy to find around you. Plants possess biologically active natural products which may serve as an anticarcinogenic agent. In this review we have summarized a few plants having anticancer activity.

**Key words:** Cancer, Medicinal Plants, Chemotherapy, Allopathic Drugs

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