



**A REVIEW ON HERBAL DRUG THERAPY FOR CANCER TREATMENT**

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**ABSTRACT**

Cancer is a more prone disease. There are various causes to get the cancer. The socioeconomic conditions are one of the reason to get the cancer. The signs and symptoms are varied from the different types of cancers. Chemotherapy of cancer plays a very important role in the treatment of cancer but it is having lot of side effects. The reason to adopt natural drugs for treatment of cancer was due to the less side effects. The whole plant or parts of the plant can be used as a anticancer agents. Most of the plant drugs inhibit proliferation of the transformed cell, some of the drugs were inhibitors of nucleic acids, some may act by inhibiting certain important enzymes such as topoisomerase. Hence their study reveals that natural drugs can be used for treatment of cancer with less side effects.

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**INTRODUCTION**

Cancer is a disease that involve abnormal cell growth with the potential to invade or spread to other parts of the body. It is also called as neoplasms. A neoplasm or tumor is a group of cells that have undergone unregulated growth and will often from a mass or lump. All tumour cells show the six characters. Those are cell growth and division absent the proper signals, continuous growth and division even given contrary signals, avoidance of programmed cell death, limitless number of cell divisions, promoting blood vessel construction, invasion of tissue and formation of metastases. There are two types of tumour beginn or malignant. A beginn tumor is not considered cancer it is slow growing, does not spread or invade surrounding tissues, and once it is removed, doesn't usually recur. A malignant tumor, on the other hand, is cancer. It invades surrounding tissues and spreads to other parts of the body. If the cancer cells have spread to the surroundings tissues, even after the malignant tumour is removed, it generally recurs. A majority of cancer are caused by changes in the cell's DNA because of damage due to many factors. There are many types of cancers.

**Signs and Symptoms**

**Symptoms May be of Two Types**

1. Local symptoms.
2. Systemic symptoms.

**Local Symptoms**

Local symptoms may occur due to the mass of the tumour or its ulceration. For example, mass effects from lungs can block the bronchus resulting in cough or pneumonia; esophageal cancer can cause narrowing of the esophagus, making it difficult or painful to swallow.

**Systemic Symptoms**

General symptoms occur due to effects that are not related to direct or metastatic spread. These may include: unintentional weight loss, fever, excessive fatigue and changes to the skin.

**Causes of Cancer**

1. Chemical.
2. Diet and exercise.
3. Infection.
4. Radiation.
5. Heredity.
6. Physical agents.
7. Hormones.
8. Autoimmune diseases.

**Chemicals**

Tobacco is responsible for about one in five cancer deaths worldwide and about one in three in the developed world. Lung cancer death rates in the United States have mirrored smoking patterns, with increases in smoking followed by dramatic increases in lung cancer death rates and, more recently, decreases in smoking rates since the 1950s followed by decreases in lung cancer death rates in men since 1990.

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**Diet and Exercise**

Diet, physical inactivity and obesity are related to up to 30–35% of cancer deaths. In the United States, excess body weight is associated with the development of many types of cancer and is a factor in 14–20% of cancer deaths. A UK study including data on over 5 million people showed higher body mass index to be related to at least 10 types of cancer and responsible for around 12,000 cases each year in that country. It has been shown that fat accumulating in the natural killer cells of obese people will inhibit its antitumor response. Physical inactivity is believed to contribute to cancer risk, not only through its effect on body weight but also through negative effects on the immune system and endocrine system. More than half of the effect from diet is due to over nutrition (eating too much), rather than from eating too few vegetables.

**Infection**

Infection include human papillomavirus (cervical cancer), Epstein–Barr virus (B-cell lymph proliferative disease and nasopharyngeal carcinoma), Kaposi's sarcoma herpesvirus (Kaposi's sarcoma and primary effusion lymphomas), hepatitis B and hepatitis C viruses (hepatocellular carcinoma) and human T-cell leukaemia virus-1 (T-cell leukaemia). Bacterial infection may also increase the risk of cancer, as seen in *Helicobacter pylori*-induced gastric carcinoma. Parasitic infections associated with cancer include *Schistosoma haematobium* (squamous cell carcinoma of the bladder) and the liver flukes, *Opisthorchis viverrini* and *Clonorchis sinensis* (cholangiocarcinoma).

**Radiation**

Ionizing radiation is not a particularly strong mutagen. Residential exposure to radon gas, for example, has similar cancer risks as passive smoking. Radiation is a more potent source of cancer when combined with other cancer-causing agents, such as radon plus tobacco smoke. Radiation can cause cancer in most parts of the body, in all animals and at any age. Children and adolescents are twice as likely to develop radiation-induced leukaemia as adults; radiation exposure before birth has ten times the effect.

**Drugs that Cures Cancer Disease**

Medical use of ionizing radiation is a small but growing source of radiation-induced cancers. Ionizing radiation may be used to treat other cancers, but this may, in some cases, induce a second form of cancer.

**Heredity**

The vast majority of cancers are non-hereditary (sporadic). Hereditary cancers are primarily caused by an inherited genetic defect. Less than 0.3% of the population are carriers of a genetic mutation that has a large effect on cancer risk and these cause less than 3–10% of cancer. Some of these syndromes include: certain inherited mutations in the genes BRCA1 and BRCA2 with a more than 75% risk of breast cancer and ovarian cancer, and hereditary no polyposis colorectal cancer (HNPCC or Lynch syndrome), which is present in about 3% of people with colorectal cancer, among others.

**Physical Agents**












Some substances cause cancer primarily through their physical, rather than chemical effects. A prominent example of this is prolonged exposure to asbestos, naturally occurring mineral fibres that are a major cause of mesothelioma (cancer of the serous membrane) usually the serous membrane surrounding the lungs. Other substances in this category, including both naturally occurring and synthetic asbestos-like fibres, such as wollastonite, attapulgite, glass wool and rock wool, are believed to have similar effects. Non-fibrous particulate materials that cause cancer include powdered metallic cobalt and nickel and crystalline silica (quartz, cristobalite and tridymite). Usually, physical carcinogens must get inside the body (such as through inhalation) and require years of exposure to produce cancer.

**Hormones**

Some hormones play a role in the development of cancer by promoting cell proliferation. Insulin-like growth factors and their binding proteins play a key role in cancer cell proliferation, differentiation and apoptosis, suggesting possible involvement in carcinogenesis. Hormones are important agents in sex-related cancers, such as cancer of the breast, endometrium, prostate, ovary and testis and also of thyroid cancer and bone cancer.

Name of the drug	Approved for	How it works	Side effects	Warning
Abiraterone	ADULTS	It is used to treat prostate cancer that has spread to other parts of the body.	<ul style="list-style-type: none"> <li>. Shortness of breath.</li> <li>. fast heartbeat.</li> <li>. Headache.</li> <li>. Muscle weakness.</li> <li>. Change in skin.</li> <li>. skin irritation</li> </ul>	Abiraterone tablets should not be taken by a women who is pregnant or who may become pregnant. This may cause harm to the baby or miscarriage.
Belomycin	Young people.	It helps us to kill extra generated cells in the body.	<ul style="list-style-type: none"> <li>. change in colour</li> <li>. Weight loss.</li> <li>. Not hungry.</li> <li>. Hair loss.</li> <li>. weight gain</li> </ul>	By taking this drug people may be suffering with lung problems and it is mostly seen in younger peoples.
Cisplatin	ADULTS	It is a drug that interferes with the growth of cancer cells and slows their growth and spread in the body.	<ul style="list-style-type: none"> <li>. drowsiness</li> <li>. mood change</li> <li>. hearing problem</li> <li>. numbness</li> <li>. liver damage</li> </ul>	Do not breast feed a baby while receiving this medication.
Docetaxel	It is taken by adults.	It is a cancer medicine that interferes with the growth and spread of cancer cells in the body it is used to treat breast cancer, lung cancer, prostate cancer	<ul style="list-style-type: none"> <li>. skin rash</li> <li>. difficulty in breathing</li> <li>. swelling of face, lips, tongue</li> </ul>	You should not take this medicine if you have low WBC count.

**Medicinal Plants used to Cure Cancer**

sno	Plant name	part	mechanism	photo
01.	Tinospora cordifolia	Leaves	1.Cytotoxic against Hela cells.	
02.	Ziziphus nummularia	Leaves	<ol style="list-style-type: none"> <li>1. Cytotoxic, selectively towards cancer cells compared to normal cells</li> <li>2. Induces apoptosis through ROS generation</li> <li>3. Inhibits angiogenesis.</li> <li>4. Induce loss of mitochondrial membrane potential.</li> </ol>	
03.	Andrographis paniculata	Leaf	<ol style="list-style-type: none"> <li>1. Alcoholic extract showed cytotoxic against a panel of cancer cell.</li> <li>2. Increases antioxidants enzymes.</li> </ol>	
04.	Centella asiatica.	Stem, leaf	<ol style="list-style-type: none"> <li>1. It inhibits the proliferation of the transformed cell.</li> <li>2. Antitumor activity due to inhibition of DNA synthesis.</li> </ol>	
05.	Curcuma longa	Leaf	<ol style="list-style-type: none"> <li>1. Inhibits cell proliferation in wide variety of cell.</li> <li>2. Down regulates NFK-B, AP-1, EGR-1, and COX-2.</li> <li>3. Inhibits JNK pathway, serine kinase pathway.</li> <li>4. Inhibits metastasis by reducing MMP-2</li> </ol>	
06.	Phyllanthus amarus schumacher and thonn	Leaf	1. Inhibits cell proliferation in different cancer cells.	
07.	Annona atemoya	Fruit, stem	<ol style="list-style-type: none"> <li>1.Cytotoxic against tumour cell lines.</li> <li>2. Induced cell death by chromatin margination and tumor cell.</li> </ol>	
08.	Mappia foetida	Root, leaf	<ol style="list-style-type: none"> <li>1. effective inhibitors of nucleic acid synthesis in hela cells</li> <li>2. inhibits topoisomerase-1</li> <li>. slows growth of human colon cancer cells.</li> </ol>	
09.	Withania somnifera	Root, leaf.	1. Induce apoptosis in variety of cancer cells through the rapid generation of ROS.	
10.	Cedrus deodar	Leaf	1.Induces DNA ladder formation and nitric oxide formation that leads to apoptosis.	
11.	Boswellia serrate roxb.	Leaf	<ol style="list-style-type: none"> <li>1. induces aoptosis in various cancer cells.</li> <li>2 Inhibits DNA synthesis nad cell growth.</li> <li>3. inhibits topoisomerase1 and 2</li> </ol>	

For example, the daughters of women who have breast cancer have significantly higher levels of estrogen and progesterone than the daughters of women without breast cancer. These higher hormone levels may explain their higher risk of breast cancer, even in the absence of a breast-cancer gene. Similarly, men of African ancestry have significantly higher levels of testosterone than men of European ancestry and have a correspondingly higher level of prostate cancer. Men of Asian ancestry, with the lowest levels of testosterone-activating androstenediol glucuronide, have the lowest levels of prostate cancer.

## CONCLUSION

Cancer is a disease that involve abnormal cell growth and invade to other parts. Majority of the cancers are caused by the changes in the cell's DNA because of the damage due to many factors. Chemotherapy of the cancer plays vital role in curing the cancer. There are certain important drugs Abiraterone, Bleomycine, Cisplatin, Docetaxel and some antibiotics were used for the treatment of cancer. Chemotherapy of the cancer have many side effects. Hence there is a emergence of herbal drugs to treat the cancer. The leaves of *Tinospora*, *Ziziphus*, *Anrographis* having cytotoxic activity. Roots of *Mappia* and *Withania* also having anticancer activity. The study of the herbal drugs plays a very important role in the development of novel anticancer drugs.

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