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Natural Herbs as a Anticancer Drugs

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Abstract: *One of the signs of cancer is uncontrolled cell growth. According to the type of affected cell, there are several distinct types of cancer. Cancer causes harm to the body when aberrant cells develop out of control and become tumours, lumps, or masses of tissue. Some of the most significant contemporary treatments available are chemotherapy, radiation therapy, and surgery. But there are a lot of unfavourable side effects associated with this medicine, such as baldness and bone marrow cell loss. As a result, a new drug is necessary to treat the malignancy. Some compounds derived from plants may have anticancer characteristics, according to several studies. Secondary metabolites produced by the plant are being investigated for possible anticancer effects.*

Keywords: Herbs.

I. INTRODUCTION

The fight against cancer has been ongoing on a worldwide scale, despite significant advancements in treatments and prevention. The human body's cells exhibit a constant cycle of cell division that cannot be stopped or regulated, which is a defining feature of the condition. Consequently, the development of tumours made of cancerous cells with the ability to spread [1]

Chemotherapy, radiation therapy, and pharmaceuticals made of chemicals are some of the current therapies. Chemotherapy is one treatment that can put people under a lot of stress and further harm their health. As a result, emphasis is placed on adopting complementary and alternative medicines to treat cancer [2]. Herbal remedies have been utilised for a long time and are still used as the main form of medical care in poor nations. Due to their inherent antibacterial qualities, plants have been utilised in traditional medicine. In order to prepare prospective nanomaterial-based treatments for diseases such as cancer, study has been done into the characteristics and applications of extracts from terrestrial plants. The use of several plant species to treat or stop the development of the cancer With a focus on those plants that have been utilised in herbal therapy in underdeveloped nations, several researchers have discovered a species of plants that have shown anticancer capabilities. [1,3,4]. It is being researched if some substances that are unique to the plant world and essential for a plant's existence and "housekeeping" of the organism might stop the development of malignant cells and trigger their death.

1.1 Definition and Classification:

Aim: Natural Herbs as Anticancer drugs

Objective:

This article seeks to provide an overview of recent advancements in the field of plant-derived chemicals with therapeutic potential against cancer.

Definition:

"A disease is created by an aberrant cell's unchecked division in a specific area of the body."

Classification of Cancer

Both the primary site, or the area of the body where the cancer originally originated, and the kind of tissue in which the cancer originates (histological type) are used to classify cancers. This section provides an introduction to the first approach, which classifies cancer according to its histological type. The International Categorization of Diseases for an Oncology is the global norm for the naming and classification of histologies.

There are hundreds of distinct malignancies from a histology perspective, which are divided into six main categories:

- Carcinoma

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- Sarcoma
- Myeloma
- Leukemia
- Lymphoma
- Mixed Types

CARCINOMA

A malignant tumour of epithelial origin or a cancer of the internal or exterior lining of the body is referred to as a carcinoma. Eighty to ninety percent of all cancer cases are carcinomas, which are malignancies of the epithelial tissue.
There is epithelial tissue all across the body. It can be found in internal pathways like the gastrointestinal tract as well as the skin, which covers and lines the organs.
Adenocarcinoma, which develops in an organ or gland, and squamous cell carcinoma, which starts in the squamous epithelium, are the two main kinds of carcinoma.
A swollen plaque-like area of white mucosa is the earliest sign of an adenocarcinoma, which often develops in the mucous membranes.
The majority of carcinomas attack organs or glands that may secrete, including the breasts, which produce milk, the lungs, which release mucus, the colon, the prostate, and the bladder.

SARCOMA

A malignancy that develops in supporting and connective tissues, such as bones, tendons, muscle, cartilage, and fat, is referred to as a sarcoma. The most common sarcoma often starts as a painful lump on the bone in young people. Typically, sarcoma tumours resemble the tissue in which they develop.

Several sarcomas include:

- Inflammatory or malignant osteosarcoma (bone)
- Chondrosarcoma (cartilage) (cartilage)
- Leiomyosarcoma (smooth muscle) (smooth muscle)
- Rhabdomyosarcoma (skeletal muscle) (skeletal muscle)
- Mesothelial cancer or mesothelial sarcoma (membranous lining of the body cavities)
- Fibrosarcoma (fibrous tissue) (fibrous tissue)
- Hemangioendothelioma or angiosarcoma (blood vessels)
- Liposarcoma (adipose tissue) (adipose tissue)
- Astrocytoma or glioma (neurogenic connective tissue is found in the brain)
- Myxosarcoma (primitive embryonic connective tissue) (primitive embryonic connective tissue)
- a mixed mesodermal tumour or a mesenchymal tumour (mixed connective tissue types)

MYELOMA

A malignancy called myeloma develops in the bone marrow's plasma cells. Some of the proteins in blood are produced by the plasma cells.

LEUKEMIA

Leukemias are bone marrow tumours also referred to as "liquid malignancies" or "blood cancers" (the site of blood cell production). Leukemia is referred to in Greek as "white blood." The syndrome is typically associated with an excessive generation of immature white blood cells. Because of the subpar function of these young white blood cells, the patient is commonly prone to infection. Red blood cells are also impacted by leukaemia, which can lead to anaemia, poor blood clotting, and fatigue. Two types of leukaemia are myelogenous and granulocytic.
Lymphoblastic leukaemia, another name for lymphocytic leukaemia (malignancy of the lymphoid and lymphocytic blood cell series)

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Polycythemia vera or erythremia (malignancy of a various blood cell products, but with the red cells predominating)

LYMPHOMA

The lymphatic system, which is made up of a network of tubes, nodes, and organs (including the spleen, tonsils, and thymus) that cleans bodily fluids and produces lymphocytes, or white blood cells that fight infection and sickness, is where lymphomas develop. Leukemia is sometimes referred to be a "liquid cancer," whereas lymphoma is a "solid cancer." Additionally, lymphomas can manifest in the brain, breast, or particular organs including the stomach. These lymphomas go by the designation extranodal lymphomas. Hodgkin Non-Hodgkin lymphoma and lymphoma are the two subtypes of lymphomas. When it comes to diagnosis, Reed-Sternberg cells can help differentiate Hodgkin lymphoma from Non-Hodgkin lymphoma.

MIXED TYPES

The kind of the components might fall under one category or span many. Examples include:

- Cancer of the adenoids
- Hybrid mesodermal tumour
- Carcinosarcoma\steratocarcinoma

You will find a detailed list of the many tissue types and the tumours that develop from them in the section after this one.[5]

Cancer Symptoms and Signs

Most people with cancer don't have any symptoms or other indications of the disease. Unfortunately, an innocuous illness can also account for every cancer complaint or symptom. Certain age groups are more likely to get certain malignancies than others. However, if certain symptoms manifest or continue, a doctor should be seen for additional assessment.

Some typical cancer symptoms are listed below:

- Persistent cough or snot that is stained with blood
- These symptoms typically signify a straightforward illness like sinusitis or bronchitis.
- They can be signs of head and neck cancer or lung cancer. Anyone with a persistent cough that lasts longer than a month or who coughs up bloody mucus should consult a physician.

Altered bowel habits:

- The majority of bowel habit alterations are influenced by your food and hydration consumption.
- Doctors occasionally observe pencil-thin stools in colon cancer patients.
- Cancer can occasionally cause ongoing diarrhoea.
- Some cancer patients feel as though they need to go to the bathroom and continue to feel that way even after doing so. Any of these unusual gastrointestinal problems that persist for more than a few days need to be evaluated.
- Any major alteration in bowel movements that cannot be simply attributed to food changes should be investigated for cancer risk.

Stool with blood in it

- Blood in your stool should always be investigated by a doctor.
- Hemorrhoids commonly cause rectal bleeding, but since they are so widespread, they may also be associated with malignancy. Therefore, if you have blood in your bowel movements, even if you have haemorrhoids, you should have a doctor check your whole digestive tract.
- For some people, X-ray tests may be sufficient to clarify a diagnosis.
- A colonoscopy is typically advised.
- Once you reach the age of 50, regular colonoscopies are advised, even in the absence of symptoms.

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- Sometimes, these investigations may not be required if the cause of the bleeding is completely evident (such as in the case of recurring ulcers).

Uncounted for anaemia (low blood count)

- Anemia is a condition in which a person's blood has fewer red blood cells than normal. Investigations for anaemia are always advised.
- Although there are many different types of anaemia, iron deficiency anaemia is usually always caused by blood loss. This anaemia has to be explained unless there is a clear source of continued blood loss.
- Although several malignancies can induce anaemia, colon cancers are the most prevalent culprits for iron deficiency anaemia. Endoscopy or X-ray examinations of your upper and lower intestine tracts should be a part of the evaluation.

Breast swelling or bleeding

- The majority of breast lumps are benign tumours like cysts or fibroadenomas. However, every breast bump must be properly examined to rule out breast cancer.
- A breast lump cannot often be evaluated using a negative mammography result. Your doctor needs to choose the best type of X-ray, which might be a breast ultrasound or an MRI.
- Typically, a needle aspiration or biopsy is required for diagnosis (a small tissue sample).
- Although discharge from the breast is typical, some types of discharge may indicate malignancy. It is advised to have additional testing done if the discharge is bloody or comes from only one nipple.
- It is recommended that women self-examine their breasts once a month.

Testicular clumps

- 90% of men with testicular cancer have a lump on one of their testicles that is either painless or unpleasant.
- A few males suffer from enlarged testicles.
- Your testicles might alter due to a variety of medical issues, including infections and enlarged veins, but any bulge should be checked out.
- Men are encouraged to self-examine their testicles once a month.

Altered urination

- Frequent urination, infrequent urination, delayed urine flow, or a general alteration in bladder function are all examples of urinary symptoms.
- These symptoms might be brought on by enlarged prostates in males or urinary infections, which often affect women.
- These urine symptoms are frequently experienced by older men who have a benign prostatic enlargement.
- Prostate cancer may also be indicated by these symptoms.
- Men who have urinary symptoms should get additional testing done, which may include blood work and a digital rectal exam. Talk to your doctor about the PSA blood test, its warning signs, and how to interpret the findings.
- A prostate biopsy may be required if malignancy is suspected.
- Cancer of the bladder and pelvic tumors can also cause irritation of the bladder andurinary frequency.[5]

A CANCER RISK FACTOR

- usage of tobacco and alcohol
- Dietary factors, such as a lack of fruits and vegetables.
- obesity and being overweight.
- Active inactivity
- Chronic H. pylori, Hepatitis B, Hepatitis C, and maybe a form of human papillomavirus infection (HPV)
- Ionizing and non-ionizing radiation are risks associated with the environment and the workplace.

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II. COMPROMISES OF CANCER

Cancer and its treatment may result in a number of problems, such as:

- **PAIN:** Even while not all cancers are unpleasant, pain can nonetheless be brought on by the disease or its treatment. Cancer-related discomfort can be adequately treated with medications and other methods.
- **FATIGUE:** Cancer patients' fatigue might have numerous reasons, but it is frequently treatable. Although it is frequently transient, fatigue brought on by chemotherapy or radiation therapy treatments is prevalent.
- **INABILITY TO BREATHE:** A sense of being out of breath might be brought on by cancer or cancer therapy. Treatments could result in alleviation.
- **NAUSEA:** The nausea can be brought on by specific tumours and cancer therapies. If your therapy is likely to make you feel queasy, your doctor may be able to forecast this. You can avoid with the use of medications and other therapies**.** or decrease nausea.
- **EITHER CONSTIPATION OR DIARRHEA:** Your intestines can be impacted by cancer and cancer treatments, resulting in constipation or diarrhoea.
- **LOSS OF WEIGHT:** Weight loss might result from cancer and cancer treatments. Normal cells are starved of fuel and nutrients by cancer. This is challenging to treat since it frequently isn't impacted by calorie intake or the type of food consumed. Utilizing artificial feed delivered by tubes into the vein or stomach typically has little impact on weight loss.
- **BODY CHEMISTRY CHANGES:** Cancer has the potential to alter your body's regular chemical balance and raise your risk of life-threatening consequences. Constipation, frequent urination, increased thirst, and disorientation can all be indications of a chemical imbalance.
- **PROBLEMS OF THE BRAIN AND NERVOUS SYSTEM:** Cancer can irritate neighbouring nerves, resulting in discomfort and a loss of function in a single body area. Headaches and symptoms like those of a stroke, such as weakness on one side of your body, often accompany brain cancer.
- **IMMUNE SYSTEM REACTION UNUSUAL TO CANCER:** In rare instances, the immune system of the body may target healthy cells in response to the presence of cancer. These extremely unusual responses, known as paraneoplastic syndrome, can cause a wide range of signs and symptoms, including trouble walking and convulsions.
- **SPREADING CANCER:** A cancer may "metastasize" (spread to other places of the body) as it becomes worse. The kind of cancer determines where it spreads.
- **RUNNING CANCER:** Cancer recurrence is a danger for cancer survivors. Different malignancies have different recurrence rates. Consult your physician for advice on how to lower your chance of developing cancer again. After the therapy, your doctor could come up with a plan for your ongoing care. In the months and years following your treatment, this plan can call for routine scans and checks to check for cancer recurrence.

PREVENTION OF CANCER

PREVENTION, TREATMENT, AND DIAGNOSIS

People can

- decrease their exposure to ionising radiation,
- limit their exposure to UV radiation,
- control occupational risks, and
- Raise their avoidance of the risk factors mentioned above (occupational or medical diagnostic imaging).

The hepatitis B and HPV vaccines might prevent 1 million occurrences of cancer annually. [6]

1. DIAGNOSIS

Check-up on the body The various areas of your body may be examined by your doctor for lumps that might be tumours. The doctor may be on the lookout for abnormalities during a physical examination, such as changes in skin tone or the expansion of an organ, that might indicate the presence of cancer.

laboratory tests To detect irregularities that might be caused by cancer, your doctor may use laboratory testing, such as

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blood and urine tests. For instance, a complete blood count, a common blood test, may reveal an unusually high or low quantity or type of white blood cells in a leukaemia patient.

Scanning tests Your internal organs and bones may be examined by your doctor without invasive treatments owing to imaging scans. A few imaging techniques that may be used to detect cancer include a bone scan, computed tomography (CT) scan, magnetic resonance imaging (MRI), positron emission tomography (PET) scan, ultrasound, and X-ray.

Biopsy. During a biopsy, your doctor collects a sample of cells for laboratory analysis. There are several methods for gathering samples. You should have the right biopsy method depending on the kind and location of your cancer. Usually, a biopsy is necessary to determine a specific cancer diagnosis.

Under a microscope, doctors examine the cell samples in the laboratory. Normal cells are uniform in appearance, similar in size, and well-structured. Cancer cells have a less organised appearance with a range of sizes and no discernible structure.

2. TREATMENT

Chemotherapy: Chemotherapy is the most popular kind of cancer treatment. It involves administering medications to cure cancer. The ideal medication would kill cancer cells while sparing healthy cells; however, the majority of medications are nonselective. Instead, medications are designed to harm cancer cells more severely than healthy cells, usually by employing chemicals that inhibit a cell's capacity to divide. However, because normal cells also need to develop and some do so fairly quickly, all chemotherapy drugs have an adverse effect on normal cells. nausea, vomiting, lack of appetite, hair loss, weight loss, exhaustion, and low blood cell counts that cause anaemia are frequent side effects of cancer treatment.

There are many different chemotherapy medications, some of which are produced from natural sources and others from synthetic ones, but the majority are made from natural products. There is an urgent need for a new medicine that is less toxic and more targeted toward cancer cells due to the numerous adverse effects connected with the current anticancer treatments.

- **Surgery:** Surgery's main objective is to completely remove the malignancy, if feasible.
- **Radiation therapy:** High-powered energy beams, such as X-rays, are employed in radiation therapy to kill cancer cells. A machine may be used to deliver radiation treatment inside or externally.
- **Bone marrow transplant:** Another name for the stem cell transplant is the bone marrow transplant. Bone marrow is the material that develops blood cells inside of your bones. A bone marrow transplant might utilise your own cells or those from a donor. A bone marrow transplant allows your doctor to administer higher doses of chemotherapy to treat your cancer. It may also be used to replace bone marrow that is damaged.
- **Immunotherapy:** Immunotherapy is a biological treatment that uses your body's immune system to fight cancer. Because cancer is not recognised by your immune system as an invader, it can spread unchecked throughout your body. Immunotherapy helps your immune system "see" the cancer and combat it.
- **Hormone therapy:** Certain cancers might be nourished by your body's hormones. Examples include breast and prostate cancer. If these hormones are taken out of the body or their effects are prevented, cancer cells may stop developing.
- **Clinical studies:** The study that examines cutting-edge cancer therapy alternatives is known as clinical trials. Numerous clinical trials for cancer are currently being conducted.

You can be qualified for various treatments depending on the type of cancer you have.

Herbal anticancer drug:

Herbs have long been revered for their ability to relieve pain and promote healing, and we still rely heavily on the therapeutic qualities of plants today. According to the World Health Organization, the primary healthcare system for 80% of people who live in rural regions is herbal medicine. The average man cannot afford the synthetic anticancer treatments due to the high cost. Cancer prevention and treatment are greatly aided by herbal remedies, which are widely accessible and very inexpensive. Globally, researchers are focusing on herbal remedies that help strengthen the body's defences against cancer. By comprehending the intricate synergistic interplay of a number of anticancer herb ingredients, It is possible to create herbal formulations that target malignant cells while sparing healthy cells in the body.

Several medicinal herbs that exhibit great efficacy against the cancer cell line by limiting their growth have been chosen for this investigation. The anticancer and antioxidant properties of these chosen medicinal herbs are evident. This can also be utilised to treat oxidative stress and tumours. In this investigation, phytoconstituents from plants including Cedrus

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Deodara, Piper Longum, Picrorhiza Kurroa, Berberis Aristata, Vitex Negundo Linn, etc. were employed.

Herbs with anticancer activity
Grape seeds (vitis vinifera)
Synonym- Vitis vinifera
Family- Vitaceae.
Genus- vitis
Chemical constituent- Phytosterol, quercetin, procyanidine, resveratrol, linolenic acid, tocopherol, and resveratrol
Use – It improves the chemotherapy drug's effects. Doxarubicin in a patient with breast cancer. Patient with mesothelioma is treated with doxorubicin. Anti-inflammatory, cardioprotective, antibacterial, and anticancer characteristics are also employed.

Ginger:
Synonym: Zingiber officinale
Family: Zingiberaceae **Genus:** Zingiber
Chemical Constituent: 6-Gingerol, 6-Shagaol, zingerone
Use: It has been used to aid digestion, lessen motion sickness, and treat cancers of the colon, liver, and urinary system. Both as an antioxidant and a natural cancer preventative.

Aloe-
Synonym: Aloe-emodin
Family: Asphodelaceae **Genus:** Aloe
Chemical Constituents: 1,8-dihydroxy-3-(hydroxymethyl)-anthraquinone, also known as aloe emodin,
Use: Emodine is used often to treat diseases including leukaemia and stomach cancer because of its antibacterial, anti-inflammatory, and antiproliferative properties.

Licorice root:
Synonym: Glycyrrhiza Glabra.
Family: Leguminosae
Genus: Glycyrrhiza
Chemical constituent: Licochalcone A, Licoagrochalcone ,Glycerrhizic acid
Use: It has been used cancer treatment prostate, breast,lung, stomach and kidney cancer (invivo).

Artemisia Annua:
Synonym: Sweet fern**Family:** Asteraceae **Genus:** Artemisia
Chemical constituent: Artemisinin
Use: it is effective in malaria , inflammatory and also used in liver , lung,breast,pancreaticcancer(both in vitro and vivo)

TEA:
Synonym: Camellia sinensis
Family: Theaceae
Genus: Camellia
Chemical constituents: Theophylline, Gallatonic acid, caffeine, theobromine.
Use: It is used as reduced the numbers the human cancer cell lines:breast ,colon , hepatoma(liver)and prostate as well as normal human liver cells .The destruction of cancer cellwas also observed.

Onion:
Synonym: Allium cepa
Family: Liliaceae

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Genus: Allium ;L
Chemical constituents: Flavonoid , cysteine sulphoxide,quercetin,anthocyanins,organosulfurcompound such as dially disulfide, onionin A
Use: it is used as suppress epithelial ovarian cnacer.

Milk Thisle:
Synonym: Milk thistle
Family: Asteraceae
Genus: Silybum, Vaill
Chemical constituents: it is mixture of flavonolignans such as silibinin,silidianin,silicristin,and isosilibinin.
Use: It has a strong antiproliferative impact against several malignant cell lines and is utilised as an antioxidant. It is applied to head and neck cancer, prostate cancer, breast cancer, and acute lymphoblastic leukaemia**.**

Saffron:
Synonym: Crocus sativus
Family: Iridaceae
Genus: Crocus
Chemical constituents: Saffron
Use: It is used as Liver ,lung, pancreatic cancer(in vitro)

III. CONCLUSION

Uncontrolled cell development is one of the symptoms of the condition known as cancer. The treatment of cancer is challenging. Chemotherapy, radiation therapy, surgery, and more options are currently offered as cancer treatments. But it is causing a number of negative side effects. We can utilise a chemical produced from plants to lessen the negative effects of chemotherapy. Therefore, the review paper that provides information on various plants that have anticancer drug-like properties. Additionally, it promotes the exploration of many plants for potential anticancer medication candidates.

REFERENCES

[1]. Ochwang'I DO, Kimwele CN, Oduma JA, Gathumbi PK, Mbaria JM, Kiama SG.
[2]. Medicinal plants used in treatment and management of cancer in Kakamega County Kenya. Journal of Ethnopharmacology. 2014;151:1040–1055. [PubMed] [Google Scholar]
[3]. Cancer Research UK [Accessed 23 January 2015];What is cancer? 2014 Available at: http://www.cancerresearchuk.org/about-cancer/what-is-cancer.
[4]. Freiburghaus F, Kaminsky R, Nkunya MHH, Brun R. Evaluation of African plants for their in vitro trypanocidal activity. Journal of Ethnopharmacology. 1996;55:1–11. [PubMed] [Google Scholar]