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# A REVIEW OF HERBAL MEDICINAL PLANTS AS AN ANTICANCER AGENTS

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**ABSTRACT**
*"Cancer" is the term we give to a large group of diseases that vary in type and location, but have one thing in common: abnormal cells that get out of control. It continues to multiply out of control and the result of this accumulation of abnormal cells is a mass of cells termed "cancer". The plant kingdom produces natural secondary metabolites which are being studiedfor its anti-cancer activities leading to the development of new clinical drugs. Vinca alkaloids, texans, podophyllotoxin and camptothecins have been used clinically as plant-derived anticancer agents. With the success of these compounds, these compounds have become staple anti-cancer drugs, new technologies are emerging to advance the field. Emerging technologies include nanoparticles for nanomedicines, which aim to enhance the anticancer activities of plant-derived drugs by controlling the release of the compound and exploring new delivery methods1.The purpose of this brief review is to compile the current literature on some herbal medicines and focus on their beneficial roles and drug targets in cancer therapy and chemoprevention. Herbal medicines . This review addresses the demand for naturally derived medicinal plant compounds and their properties that make them targets for potential cancer treatments. [1]*

**KEYWORDS:** *20 Herbal Medicines, Cancer, Cell Cycle.*

## INTRODUCTION

Cancer is uncontrolled growth of abnormal cells in the Body. The idea that simple plants, herbs, and foods can have anti-cancer effects is sometimes a controversial subject. The National Cancer Institute (NCI) has screened approximately 35,000 plant species for potential anticancer activities. For every person who believes that herbs and plants can slow or even kill cancer cells, there is another who will only believe in the merits of chemotherapy. Although there is still work to do in the area of scientific research; here compiled a list of the top 20 herbs and medicinal plants that have had scientific research applied to them and received positive outcomes in the area of fighting cancer. In concept of Immunomodulators, this means that they stimulate your own immune system to fight cancer cells. Others have cytotoxic action, meaning that they do kill cancer cells, but they can also kill healthy cells and should only be used under the supervision of a doctor or herbalist. [2]

**Anti-cancer is a broad word that can be broken down into three parts**

- Anti-tumor – shown to be toxic to tumors in animal studies
- Cytotoxic – shown to fight tumors in laboratory cell cultures (in vitro)
- Anti-cancer – shown to fight tumors in humans

Cancer usually takes years to develop, so prevention is preferable to any treatment. Avoid all known Carcinogens such as tobacco, excessive alcohol, processed foods, and exposure to chemicals. plantbased diet can help protect you from cancer as plants are rich in antioxidant and anti-inflammatory compounds, both of which are powerful cancer fighters.

Cancer is basically a disease of uncontrolled cell division. Cells have many different mechanisms to restrict cell division, repair DNA damage, and prevent the development of cancer. Because of this, it's thought that cancer develops in a multi-step process, in which multiple mechanisms must fail before a critical mass is reached and cells become cancerous. These differences help them grow, divide, and form tumors. For instance, cancer cells gain the ability to migrate to other parts of the body, a process called metastasis, and to promote growth of new blood vessels, a process called angiogenesis (which gives tumor cells a source of oxygen and nutrients). Cancer cells also fail to undergo programmed cell death, or apoptosis, under conditions when normal cells would (e.g., due to DNA damage)

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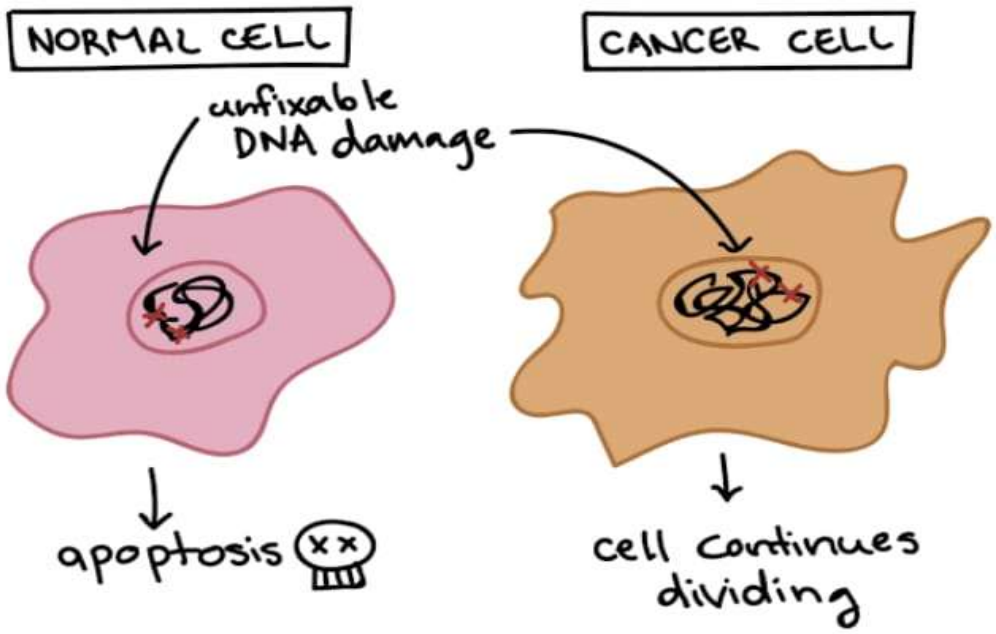



**Figure 1: Diagram showing different responses ofnormal and cancer cells to conditions that would typically trigger apoptosis**

In addition, recent research shows that cancer cells can undergo metabolic changes that promote increased cell growth and cell division. Figure 1 shows differential responses of normal and cancer cells to conditions that would normally trigger apoptosis .

- A normal cell with irreparable DNA damage will undergo apoptosis
- A cancer cell with irreparable DNA damage will not undergo apoptosis but will continue to divide.

**Development of Cancer**

Cells have many different mechanisms to limit cell division, repair DNA damage, and prevent the development of cancer. Because cancer develops in a multi-stage process in which several mechanisms must fail before a critical mass is reached and cells become cancerous. Specifically, most cancers arise when cells acquire a series of mutations (DNA changes) that cause them to divide faster, escape internal and external controls on division, and avoid programmed cell death. Figure 2. Shows mutations that lead to cancer.An initial mutation inactivates a negative cell cycle regulator. A new mutation occurs, causing the cell cycle regulator to become overactive. A third mutation occurs in one of the progeny of this second cell, which inactivates a stability factor of the genome. Inactivated, additional mutations quickly accumulate in the cell's progeny (because mutations are no longer prevented or repaired as efficiently) . Once a critical mass of Is reached Mutations affecting relevant processes are achieved, the cell carrying the mutations acquires cancerous properties (uncontrolled division, evasion of apoptosis, ability to form metastases, etc.) and is called a cancer cell. Cancer is a leading cause of mortality and morbidity worldwide, and the number of cases is steadily increasing and is estimated to reach 21 million by 2030 . It is estimated that there will be approximately 1,688 in the United States alone in 2017. 780 new Cancer diagnoses and 600,920 cancer deaths. [1]

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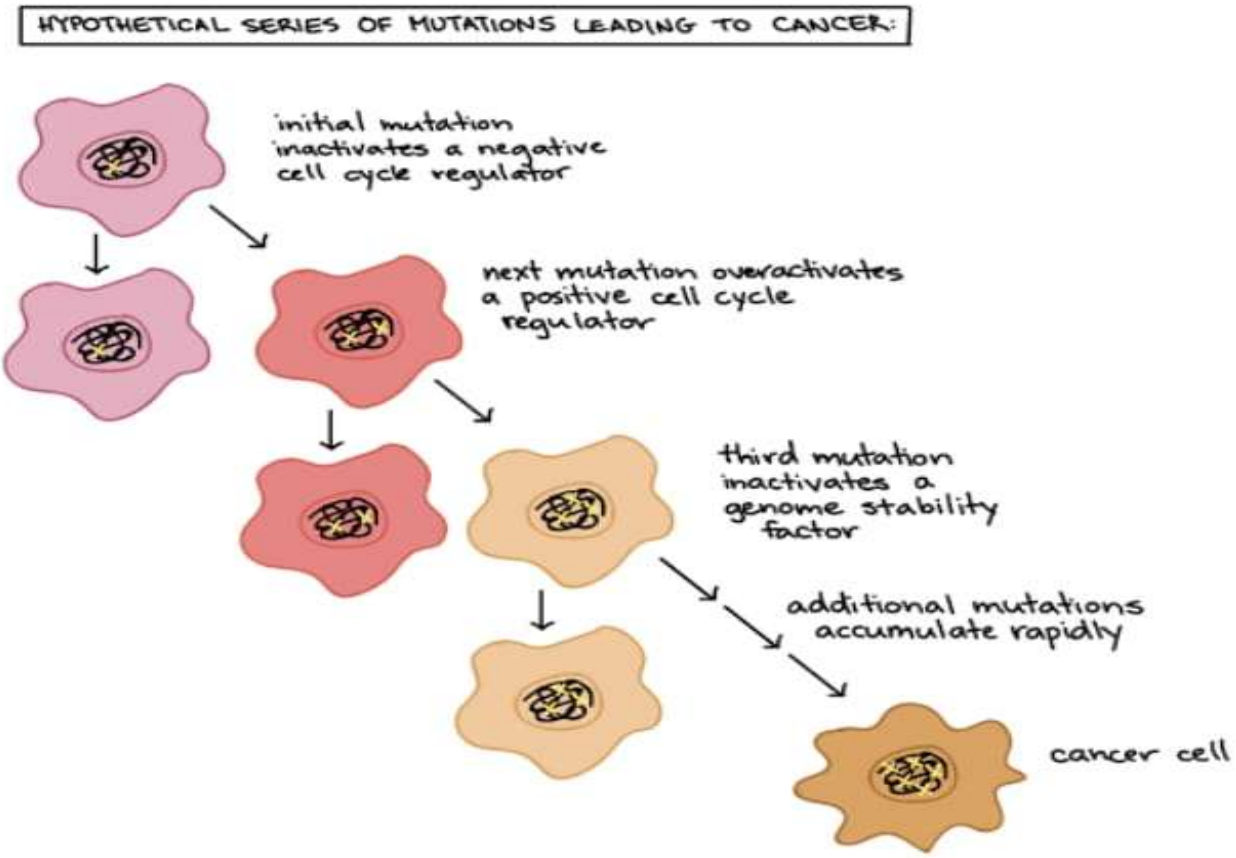



**Fig 2 , Mutation leading to cancer**

**CELL CYCLE OF CANCER**

Specifically, most cancers arise as cells acquire a series of mutations (changes in DNA) that make them divide more quickly, escape internal and external controls on division, and avoid programmed cell death, start superscript, end superscript. These include both external cues (like molecular signals) and internal cues (like DNA damage) (such as G_11start subscript, 1, end subscript) triggers the onset of the next phase (such as S). Core cell cycle regulators: proteins called cyclins, enzymes called cyclin-dependent kinases (Cdks) 35Maturation-promoting factor (MPF), and an enzyme complex called the anaphase-promoting complex/cyclosome (APC/C) [3]

**1.Cyclins**: Each cyclin is associated with a particular phase, transition, or set of phases in the cell cycle and helps drive the events of that phase or period. For instance, M cyclin promotes the events of M phase, such as nuclear envelope breakdown and chromosome condensation

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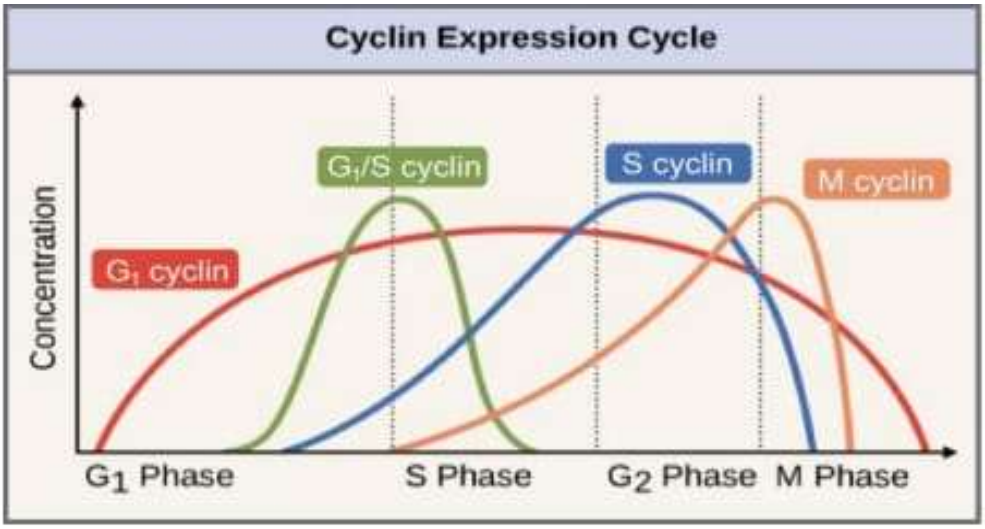



Figure 3: Cyclin Expression Cycle[16]

1) **Cyclin-dependent kinases:** In order for the cell cycle to proceed, a cyclin must activate or deactivate many target proteins within the cell. Cyclins control cell cycle events by associating with a family of enzymes called cyclin-dependent kinases (Cdks)34. A single Cdk is inactive, but binding to a cyclin activates it, making it a functional enzyme and allowing it to modify target proteins. ) Specific target proteins.The attached phosphate group acts as a switch, making the target protein more or less active.28 When a cyclin binds to a Cdk, it has two important effects: it activates the Cdk as a kinase, but it also directs the Cdk to a specific set of target proteins appropriate for the cyclin-controlled period of the cell cycle. For example, S-cyclins send Cdks to S-phase targets (e.g., promoting DNA replication), while M-cyclins send Cdks to M-phase targets (e.g., induce DNA replication). Nuclear membrane collapses . [4]

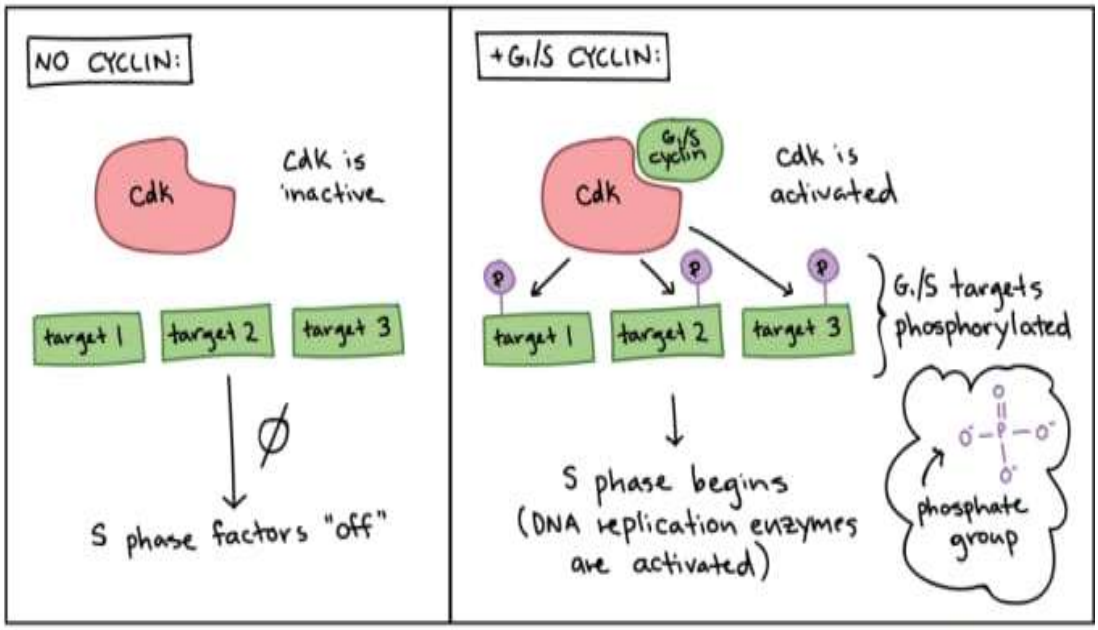



Figure 4: functioning of cyclin-dependent kinases (Cdks)[16]

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2) **Cyclin-based kinases:** In order to mobileular cycle forward, a cyclin need to spark off or inactivate many goal Proteins inner of the mobileular. Cyclins force the occasions of the mobileular cycle through partnering with a own circle of relatives of enzymes known as the cyclin-based kinases (Cdks)34. A lone Cdk is inactive, however the binding of a cyclin turns on it, making it a practical enzyme and permitting it to alter goal proteins. Its works as Cdks are kinases, enzymes that phosphorylate (connect phosphate companies to) unique goal proteins. The connected phosphate organization acts like a switch, making the goal protein greater or much less active28When a cyclin attaches to a Cdk, it has critical effects: it turns on the Cdk as a kinase, however it additionally directs the Cdk to a selected set of goal proteins, ones suitable to the mobileular cycle duration managed through the cyclin. For instance, S cyclins ship Cdks to S segment targets (e.g., selling DNA replication), even as M cyclins ship Cdks to M segment targets (e.g., making the nuclear membrane destroy down). Figure four showing functioning of cyclin-based kinases (Cdks).

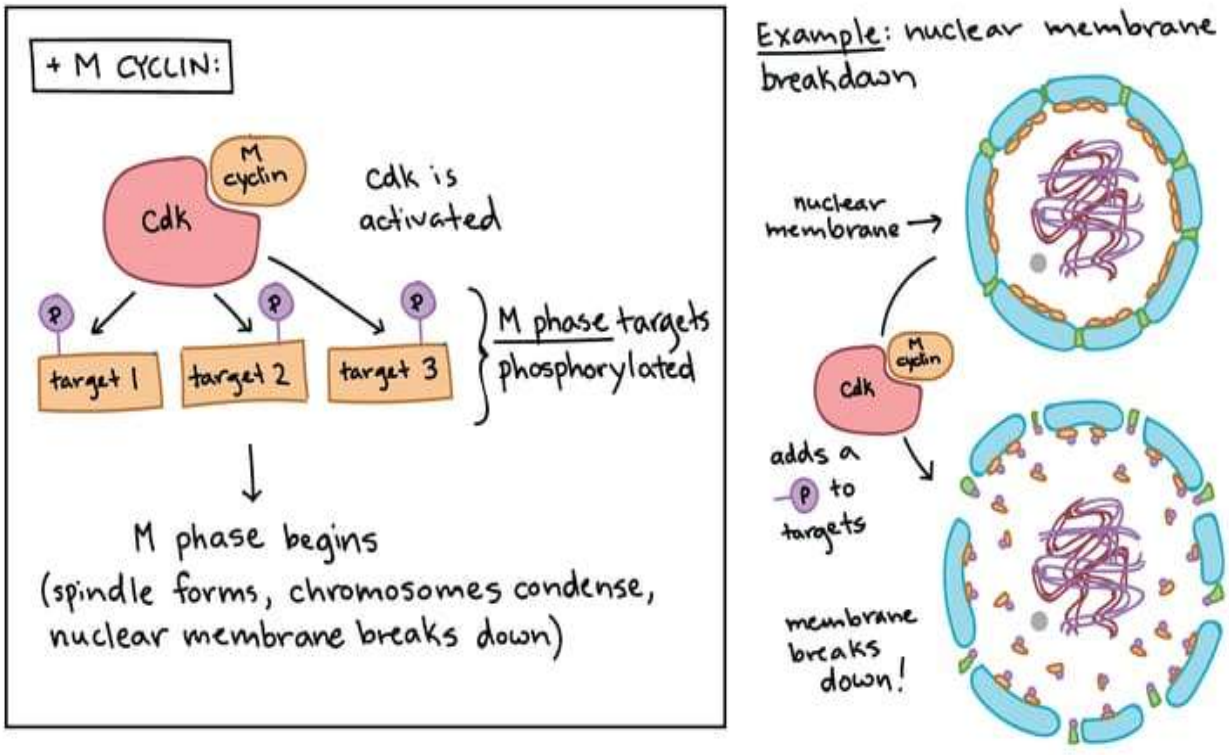



**Figure 5 : The role of MPF in nuclear envelope breakdown**

**MPF form**: left panel: The MPF complex phosphorylates several specific M phase targets, and phosphorylated targets cause spindle formation, chromosome condensation, nuclear membrane rupture, and other early M phase events. Right image: Specific example of MPF triggering nuclear envelope rupture. The MPF complex phosphorylates proteins in the nuclear envelope, resulting in fragmentation of the nuclear membrane into vesicles (and release of some proteins from the nuclear envelope). The anaphase promoter/cyclosome complex(APC/C): In addition to M-phase events, MPF also triggers its own destruction by activating the anaphase-promoting complex/cyclosome (APC/C), a protein complex that initiates the destruction of M -Cyclines caused in anaphase. APC/C's job is to bind phosphate to its targets, it adds a small protein tag called ubiquitin (Ub).When a target is tagged with ubiquitin, it is sent to the proteasome, which can be thought of as the cell's recycling bin, and destroys

• The APC/C first attaches and sends a ubiquitin tag to a protein called securin to recycle. Securin normally binds to a protein called separase and inactivates it.
• When securin is sent for recycling, the securin is activated and free to do its job.Separate separates the cohesin that holds sister chromatids together, allowing them to separate. Of Cdks and cyclins, while the negative ones, such as DNA damage, generally decrease or block activity. When the DNA damage cannot be repaired, p53 plays its third and final role: triggering programmed cell death to prevent the damaged DNA from passing On34,35,45

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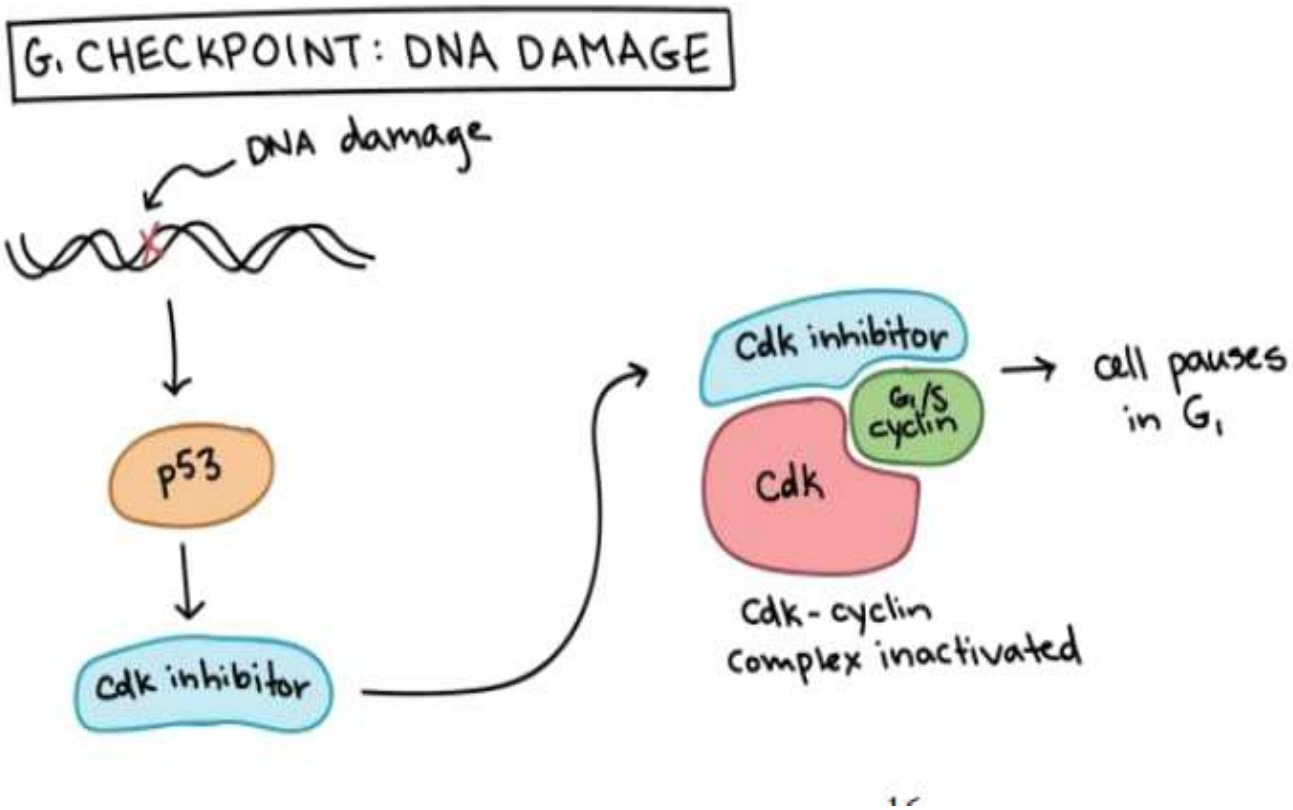



**Figure 6: DNA Damage**

P53 is activated by DNA damage and causes the production of a Cdk inhibitor that binds to and inactivates the Cdk-G1/S-cyclin complex. This halts the cell in G1 and prevents it from entering S phase, allowing time for the DNA damage to be repaired. P53 prevents mutations (DNA changes) from being passed on to daughter cells (Figure 6 shows how DNA is damaged). When p53 is defective or absent, mutations can accumulate rapidly and cause cancer16, 45 Cell cycle regulators and cancer: In general, mutations of two types of cell cycle regulators can promote cancer development: positive regulators can become over activated (oncogenic), while negative regulators, also called tumor suppressors , can be turned off .

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## ANTICANCER HERBLE DRUG

| | | | |
|---|---|---|---|
| **Burdock Root**<br>Family: Asteraceae<br>Biological Name: Arctium lappa |  | **Red Clover**<br>Family: Fabaceae<br>Biological Name: Trifolium pratense |  |
| **Grapes**<br>Family: Vitaceae<br>Biological Name:Vitis vinifera L. |  | **Bloodroot Flower**<br>Family: Papaveraceae<br>Biological Name: Sanguinaria canadensis |  |
| **Ginger Root**<br>Family: Zingiberaceae<br>Biological Name: Zingiber officinale |  | **Artemisia Annua**<br>Family: Asteraceae<br>Biological Name: Artemisia annua |  |
| **Goldenseal Root**<br>Family: Ranunculaceae<br>Biological Name: Hydrastis canadensis |  | **Barberry**<br>Family: Berberidaceae<br>Biological Name: Berberis vulgaris |  |

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| | | | |
|---|---|---|---|
| **Aloe Vera**<br>Family:<br>Asphodelaceae<br>Biological Name:<br>Aloe Vera<br>(L.) Burm.f. |  | **Tea**<br>Family:<br>Theaceae<br>Biological Name:<br>Camellia sinensis |  |
| **Clove**<br>Family:<br>Myrtaceae<br>Biological Name:<br>Eugenia<br>aromaticum |  | **Onions**<br>Family:<br>Amaryllidaceae<br>Biological Name:<br>Allium<br>cepa |  |
| **Licorice Sticks**<br>Family:<br>Fabaceae<br>Biological Name:<br>Glycyrrhiza glabra |  | **Dandelion**-<br>Flower<br>Family:<br>Asteraceae<br>Biological Name:<br>Taraxacum<br>officinale |  |
| **Turmeric Root**<br>Family:<br>Zingiberaceae<br>Biological Name:<br>Curcuma longa |  | **Foxglove-Flower**<br>Family:<br>Plantaginaceae<br>Biological Name:<br>Digitalis<br>purpurea<br>(Common<br>foxglove) |  |

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## PHYTOCHEMICAL SCREENING AND THEIR MECHANISM OF ACTION

1) **Burdock Root**

Burdock root is native to northern Asia and Europe. The applicable parts of burdock are the root, seed and leaf. Burdock root extracts appear to have antitussive, antibacterial, anticandidiasis effects and may enhance immunological effects. Activity, anti-inflammatory and free radical scavenging activity, protection of the liver from ethanol and carbon tetrachloride toxicity, possibly due to its antioxidant activity, blood purifier5 treatment of gout, pneumonia, arthritis, STDs, kidney problems, skin and respiratory problems with this root5.Burdock seeds contain arctin, which may have protective effects against cancer. Preliminary research suggests that arctin is converted into estrogenic and antiestrogenic compounds by gut bacteria8. Burdock leaves may have F. lappaol has been shown to induce G(1) and G(2) cell cycle arrest, induce cell death in several cancer cell lines, and activate caspases. In other studies, arctigenin inhibited proliferation and induced caspase-3-dependent apoptosis of ovarian cancer cells by repressing the inducible nitric oxide synthase (iNOS)/nitric oxide (NO)/transducer and activator of transcription-3 (STAT3). /survivin13 pathway.Recent research shows that burdock root is very effective at removing cancer-causing toxins that build up in our digestive system when certain foods are not digested properly. -Essence" and "Essiac". In fact, a cancer formula sold and marketed in 1919 called "Hoxsey" was burdock root. In particular, he treated breast cancer. Some herbalists claim that burdock root can stop cancer cells from metastasizing. It is commonly used in India and Russia to treat cancer. Fairly high levels of potassium. [5]

**2. Grape Seed**

Grape seed proanthocyanidins inhibit colon most cancers-prompted angiogenesis thru suppressing the expression of increase elements including vascular endothelial increase factor (VEGF) and angiopoietin-1 Grape seed proanthocyanidins (GSPs) are extensively fed on nutritional dietary supplements which have antitumor .

Activity. The mechanisms in their movement had been associated with inhibiting the expression of each VEGF and Ang1 thru scavenging reactive oxygen species6. Previous research have validated that the chemopreventive outcomes of GSPs on colon most cancers are related to their increase inhibitory andapoptosis-inducing outcomes. Results show every other mechanism through which GSPs inhibit colon tumor increase, in order to be useful for growing GSPs as a pharmacologically secure angiopreventive agent towards colorectal most cancers. The phytochemicals in grape seeds have anti-tumor or robust capacity most cancers preventative competencies that may be remoted from the seeds themselves5. Proanthocyanidins are specifically really well worth noting, as those had been discovered to forestall pancreatic most cancers cells from spreading or migrating. Group on the University of Colorado confirmed proof that grape seed extract changed into powerful towards colorectal most cancers. Extract from grape seed extract prompted the loss of life of those kinds of most cancers cells. The more superior the most cancers cells had been, the higher the grape seed extracts appeared to paintings at restricting the increase and survival of most cancers cells. Grape seed extract changed into now no longer best inflicting the loss of life of most cancers cells, however it did now no longer damage healthful cells. The proanthocyanidins in grape seed extract have additionally been pronounced to inhibit the introduction of latest blood vessels and to arrest the increase of colon tumors. Proanthocyanidins acquire in huge quantities with inside the colon due to the fact they're now no longer properly absorbed with inside the stomach. This is ideal news, because the proanthocyanidins can forestall most cancers cells greater effectively as they building up with inside the colon. [4]

**3. Ginger Root**

Gingerol, the active ingredient in ginger root, has received a lot of attention, particularly in clinical trials to determine its potential to stop or prevent certain types of cancer. The results of these pharmacological experiments show that ginger could inhibit the growth of tumors in humans. In ovarian cancer, researchers found that gingerol caused cancer cell death, reduced inflammation and improved immune function5. Research also shows that gingerol may offer protection against colon cancer as well. In many Asian countries, especially in India, ginger root is part of the daily diet. India has one of the lowest cancer rates of any country in the world. Ginger is a natural antiviral, antifungal, and antifungal agent. -parasitic, antioxidant and antibacterial. Ginger is best consumed from the fresh, organic root. Use it in tea or rub it a little in vegetable dishes. If you don't like the taste of ginger, most health food stores carry ginger supplements. The mechanism involved in ginger's chemopreventive effects is through scavenging free radicals, antioxidant signaling pathways, altering gene expression and inducing apoptosis, and therefore causes a reduction in tumor initiation, promotion and progression. [5]

**4. Goldenseal**

Gold seal is native to North America and has been used for hundreds of years by Native Americans to treat a variety of infections, including infections of the mouth, throat, or gums. Goldenseal is a key ingredient in many mouthwashes and toothpastes due to its antibacterial compounds that help prevent tooth decay and kill bacteria5. The powerful compound in goldenseal, berberine, has antibiotic compounds. This herb is currently undergoing scientific testing to determine if it reduces the risk of developing Specific types of

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cancer.Caution should be taken with turmeric and it is best used under the supervision of a doctor or herbalist as high doses can become toxic30. Goldenseal has been shown to have antimicrobial activity against intestinal protozoa such as Entamoeba histolytica, Trichomonas, and Giardia lamblia, as well as Salmonella, Shigella, Klebsiella, Escherichia, Proteus, Staphylococcus, Leishmania, and Vibrio. Colon cancer cell lines, if the same effect is translated in vivo to clinical colon cancers, resulting in a decrease in P-gp function, this could result in an increase in the availability of orally administered drugs with the added benefit that turmeric also has intestinal confers antipathogenic effects.

**5. Aloe Vera**

Aloe vera is therapeutic for burns or skin irritations, but there are very promising treatments using aloe vera to treat certain types of cancer. Aloe vera contains a compound called 1,8 dihydroxy-3 (hydroxymethyl) – anthraquinone, which has been shown to cause cell death in human bladder cancer cells. It has impressive anti-cancer effects. It stops cell viability and stops the G2/M of cell life cycle5. In summary, the present study showed that aloe vera herbal extracts can induce cytotoxic and genotoxic activities in human hepatocellular carcinoma (HepG2) cells by inducing the apoptotic signaling pathway. And antiproliferative effects in several cancer types and cell lines. Aloe-emodin has great potential to serve as an adjunct to conventional chemotherapeutic regimens, as these data demonstrate the potential For synergy with selected chemotherapeutic agents, allowing for drug dose reduction.

**6. Turmeric**

Turmeric is native to India and Southeast Asia. Turmeric has been used for inflammation, allergies, rheumatism and liver problems. The active ingredient in turmeric, curcumin, causes cancer cell death without harming healthy cells. An activation pathway, kappaB, which is implicated in numerous inflammatory diseases, including cancer. Some recent studies show that curcumin has anti-cancer potential.When given orally to laboratory rats, turmeric was effective in preventing stomach, lung, colon, breast and skin cancer. In a 2001 in vivo study conducted on rodents, it was shown that turmeric, when administered as a dietary supplement throughout its life cycle, showed a significant reduction in cancer cell activity compared to the control group. Curcumin has been found to be a genetic regulator when it comes to carcinogenesis. In a clinical study it was found to stop the migration of Lung cancer cells.More recently, turmeric has been studied for the potential treatment of breast cancer and myeloma5

**7. Clove**

Cloves are actually the dried flower buds of trees native to India, Pakistan, Zanzibar and Madagascar. Clove oil has been studied for its ability to enhance immune function, meaning it offers protection or prevention against cancer. Antioxidants that have the potential to act as anticancer agents, according to the American Pharmaceutical Association's Practical Guide to Natural Medicines. Clove has antiseptic, antibacterial, antifungal and antiviral properties, but its potential anticancer activity is still unknown41.Clove Oil has the highest concentration of antioxidant activity of any ingredient tested by ORAC (Oxygen Radical Absorbance Capacity); is a laboratory test that attempts to quantify "total antioxidant capacity"). The American Cancer Society says there is currently insufficient evidence that clove oil can treat or prevent cancer; however, its high antioxidant content shows that it is a potent source of anthocyanins, which are known to stop tumor growth and kill existing cancer cells5

**8. Licorice Root**

Ancient Chinese medicine has used licorice root as an antiviral, anti-inflammatory and anti-inflammatory agent. Carcinogens often cause DNA damage, and licorice root offers protection against this type of damage. Licorice root also contains polyphenols that promote apoptosis (automatic death) in cancer cells. Licorice regulates hormone production by the adrenal glands and reduces stress chemicals. Chronic stress often triggers the growth of cancer cells.Licorice root stops proliferation of breast cancer cells in humans, according to a study conducted in South Korea. It modulates the expression of the apoptotic regulatory factors Bcl-2/Bax (B cell lymphoma 2). Expression of the tumor suppressor genes p53 and p27 and down regulated the expression of genes related to the cell cycle. Cells from Suppression of AhR (aryl hydrocarbon receptor) expression and cell cycle arrest. Therefore, licorice root can be used as a potential toxicity-reducing agent against EDC (Electric Daisy Carnival)-mediated diseases.

**9. Red Clover**

A Native American remedy, Flor Essence, remains a popular herbal tonic taken by cancer patients. Its main ingredient is red clover (trifolium pretense). The University of Maryland Medical Center found that red clover helps prevent certain types of cancer. The same scientists mention in their article that they believe red clover should not be consumed by women with breast cancer or women with a family history of breast cancer. Red Clover Supplements are available at most Health Food is stored in tablets, capsules or tinctures. Dried red clover leaves are often made into a tea with a typical daily dose of about 4 grams of dried

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**10. Bloodroot**

Sanguinaria is native to Canada, eastern North America and Nova Scotia. It has been used externally as a home remedy for skin cancer and is perhaps the most well-known anti-cancer herb. There are several publications showing that tormentil has the potential to be an effective anti-cancer agent. Several studies have shown that Bloodroot exhibits consistent antineoplastic activity; it can shrink tumors and has been shown to be useful in the treatment of sarcoma. The juice is poisonous Yes It is consumed in amounts exceeding minutes, but all parts of the plant can be used externally. It is often used in naturopathic treatments for skin cancer5.

**11. Artemisia Annua**

Artemisia annua is also called sweet annie, sweet fern, sweet wormwood or annual wormwood. This little-known plant, recently morphed into wormwood, had the potential to become a powerful anti-cancer herb. A compound extracted from this plant called artemisinin has been shown to have beneficial effects against cancer cells and malaria along with numerous viruses including hepatitis B and C, Along with herpes simplex. In colon cancer, breast cancer, leukemia and other types of cancer. It shows promise for the development of both preventive and therapeutic measures. The flavonoids present in the leaves of A. annua have been linked to the suppression of CYP450 enzymes responsible for altering the absorption and metabolism of artemisinin in the body, but have also been linked to beneficial immunomodulatory activity in individuals brought to those affected by parasitic and chronic diseases . [6]

**12. Barberry**

Barberry (Berberis vulgaris), used primarily for fever, fatigue and upset stomach, has recently been recognized as a powerful herb against cancer. Barberry has powerful anti-inflammatory, antibiotic, and antioxidant properties. It is often used interchangeably with goldenseal because the two plants share a similar composition. Recent studies show that barberry improves immune functions and may lower high blood pressure. According to Ayurvedic tradition, barberry is an effective treatment for liver tumors. A Taiwanese study shows that when barberry is given to cancer patients in high doses over time, the berberine alkaloid berberine kills cancer cells in human tests. Barberry is another ingredient in Hoxsey's herbal formula. for the treatment of cancer.

**13. Tea**

A 2006 USDA study found that tea contains more than 700 different compounds, many of which were already known for their disease-fighting abilities. These known disease-fighting compounds include polysaccharides, flavonoids, certain vitamins and amino acids17. All types of tea, including white-green, black, and oolong, have been found to contain high levels of antioxidants, which are powerful anti-aging and anti-tumor agents5. The tea is high in vitamin C, which is known to fight Cancer that causes free radicals.The tea has a low glycemic index and has powerful cleansing properties. Regular tea consumption has long been linked to the prevention of diabetes and heart disease. [7]

**14. Onion**

Onions have high antioxidant activity and are associated with a variety of pharmacological elements, including anti-inflammatory, antibiotic and anti-cancer properties. One study showed increased antioxidant activity in older rats fed onions. There is a clear link between onion consumption and the risk of common cancers. Researchers at the Mario Negri Italian Institute for Pharmacological Research collected data from Italian and Swiss controlled trials and multivariate logistic regression models for onion consumption and cancer rates. Risk rates vary, but onions reduced the risk of colon, ovarian, renal cell, prostate, esophageal, oral, and breast cancers. Onions are rich in polyphenols that help prevent diseases, including cancer. Onions are also high in antioxidants, which are also known to fight cancer. This popular vegetable also contains a compound called quercetin, which has been shown to reduce cancerous tumor cells.

15. **Dandelion**

Recently, there has been strong evidence that dandelions spreading weeds in your garden can inhibit the development and growth of numerous cancers, including preventing their ability to metastasize. Abscesses, water retention, tumors and cysts. A 2008 study provided some scientific evidence that dandelion (Taraxacum officinale) extracts contained anti-cancer compounds. Dandelion selectively reduced the metabolic activity of Aggressive colon cancer cells, regardless of their p53 45 status. Three extracts from dandelion leaves, roots and mature flowers were prepared during this study. The activity of all parts on tumor progression was analyzed. This study showed that the leaf of this common weed blocked the growth of breast cancer. Cells and invasions of prostate cancer cells. Dandelion root extract stopped the invasion of breast cancer cells. The flower of this plant has High antioxidant compounds, as shown by a 2005 Canadian study. This study showed that dandelion extract stopped hydroxyl and superoxide radicals, meaning dandelion has the potential to be a powerful, albeit novel, fight against cancer. [8]

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**16. Foxglove**

Several studies have been conducted on foxglove and its potential cancer-fighting properties. There are two varieties of this plant, Digitalis purpurea L and Digitalis lanata ehrh. These two were tested for in vitro cytotoxicity after polypeptide isolation and extraction. Both have been shown to have potent antitumor properties. A study carried out in Spain in 2003 analyzed the cytotoxic activity of the leaves of the D5 strain. Purifies against human cancer cells. The extracts used (C50 0.78-15ug/ml), especially the methanolic extract, had a high cytotoxic effect. Actosides, which can be extracted from the leaves of this common flower, have a hepatoprotective effect on a toxin called aflatoxin B1.This makes this plant cytotoxic and a powerful chemopreventive option. It's the chemical in foxglove flowers called digoxin, which is known to slow the spread of breast and prostate can conditionincludingmyocardial cer cells by up to 24 percent. Please note that this is an excerpt that has been professionally removed5. Foxglove is the main source of cardenolides, which have several potent pharmacological properties against certain pathological infarction, arterial hypertension, cardiac dysfunction, angina and hypertrophy.Besides the main effect of controlling heart rhythm, many researchers have shown that lanatoside C and some other cardiac glycosides are effective in various cancer treatments such as prostate cancer and breast cancer.

## CONCLUSION

Cancer is becoming a high profile disease in developed and developing countries. In 2007, the WHO published that 7.6 million people died from cancer-related diseases in 2005 and most of these people lived in low-income countries. In the United States, cancer is the cause of 1 in 4 deaths and in 2010 there were an estimated more than 1.5 million new cancer cases. Cancer Research UK said that in 2012 14.1 million adults were diagnosed with cancer and 8.2 million people died from cancer worldwide. Therefore, the demand for curing and preventing cancer is extremely high. Medicines derived from chemicals have been developed and other cancer treatments already exist. Medicinal plants have helped improve people's health. Plant extracts and the bioactive compounds they contain, which are responsible for the anticancer effect, must be tested for their effectiveness. Valuable information. This review presented some of the plants that possess anticancer activity for various cancers. This review may help others to further research the herbs and their use in several other Disease and toxicity studies along with clinical trials.The mass cultivation of medicinal plant species and the use of raw by-products in industry can also

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