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Anticancer medicinal plants

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Abstract
The most fatal disease, cancer is responsible for many significant health issues, physical impairments, fatalities, and morbidities across the globe. In terms of fatalities, it comes in second place globally. Even though tremendous progress has been made in the management of cancer progression, there are still many areas that require attention. Chemotherapy was linked to a lot of hazardous and undesirable side effects. Natural therapies, such as using plant-based products, help lessen the negative side effects of cancer treatments. Although numerous plants have demonstrated very promising anticancer capabilities *in vitro* and *in vivo*, the active anticancer components of many plants have not yet been determined. Botanists, pharmacologists, and chemists must work together to find novel lead anticancer components. It is accurate to say that the "Botanical Garden of the World" is the world's biggest producer of medicinal plants. Additionally, in addition to having inherent healing powers, medicinal plants offer food and other essentials for survival. Studies on these plants' potential as anticancer medicines have been prompted by both their traditional applications and scientific reports. Some of these items have even been promoted as cancer treatments. These plants may support host resistance to infection by restoring bodily homeostasis and conditioning bodily tissues. It is believed that the anticancer properties of medicinal plants are caused by the presence of antioxidants. Compared to medicinal plants, modern (allopathic) medications are poisonous, easily available, and expensive.

Keywords: Cancer, medicinal plants, anti-cancer activity, anti-cancer agent, and medicines

Introduction
Malignant tumors (cancers) are abnormal growths and proliferating cells. The patient loses several physiological functions in addition to experiencing discomfort and physical alteration. Cancer may develop in any portion of the body at any time and any age; it is both uncontrollable and incurable. A complex, poorly understood interaction of genetic and environmental variables is the root reason. With almost 6 million deaths annually, it is still the leading cause of death worldwide. Every year, 3500 people worldwide million die from cancer. Several chemopreventive drugs are used to treat different tumors, however, they have adverse effects that limit their use. Even though over 1500 anticancer medications are actively being developed, with over 500 of those therapies currently through clinical trials, there is an urgent need to create medicines that are more effective and less harmful.

Chemotherapy, radiation, and medications made from chemicals are currently used as therapies. Chemotherapy is one treatment that can put people under a lot of stress and worsen their health. As a result, emphasis is placed on employing complementary and alternative cancer therapy. Herbal remedies have been and continue to be the mainstay of medical care in underdeveloped nations for many years. Due to their inherent antibacterial characteristics, plants have been employed in medicine. The kingdom of plants is crucial to both human and animal existence. India, which is aptly referred to as the "Botanical Garden of the World," is the country that produces the most medicinal plants. According to one estimate, there are 8000 species of medicinal plants, which make up around 50% of all higher plant life. In other words, there are around 400 families of flowering plants, and India is a representative of at least 315 of them. A small number of these plants have been known to have medicinal characteristics, but many other plants that are still utilized in local folklore have not yet been researched. It is being researched whether some substances that are unique to the plant kingdom and essential for plant survival and "housekeeping" of the organism can stop the growth and trigger the apoptosis of malignant cells.

Ayurveda, Siddha, and Unani medical traditions offer a solid foundation for the scientific investigation of naturally occurring compounds with therapeutic value.

Ayurveda is being redefined as modern medicine as a result of its rediscovery. Ayurveda and sophisticated drug research programs working together is an emerging idea that is acceptable everywhere. There is a long history of traditional medicine helping people all around the world. For the study and creation of natural drugs, ethnobotany is a valuable resource. The use of traditional medicine information in plant research has once more attracted a lot of interest in recent years. The Western usage of such data has also come under increased scrutiny, and most academic and industrial researchers now respect the national and indigenous rights to these resources. Approximately three-quarters of the world's population currently uses herbs and other traditional remedies to cure illnesses, according to the World Health Organization (WHO). In India, traditional remedies are frequently employed. The last 20 years have seen a dramatic surge in the use of plants and phytomedicines, even in the USA. Additionally, it has been stated that natural products make up more than 50% of all modern medications in clinical use, many of which are capable of inducing apoptosis in a variety of cancer cells of human origin.

Plant compounds with anti-cancer plants

Many plants are utilized for their therapeutic benefits in industrialized economies, while medicinal plants have been utilized in folk medicine for thousands of years among tribes in Asia and Africa. The World Health Organization (WHO) claims that certain countries still rely primarily on plant-based treatments as their primary supply of medication, and developing countries are making use of the potential health benefits of naturally produced substances. Polyphenols, brassinosteroids, and taxols are among the substances discovered in terrestrial plants and extracted for their anticancer effects.

Polyphenols

Flavonoids, tannins, curcumin, resveratrol, and gallocatechin are polyphenolic substances that are all regarded as anticancer substances. Foods containing resveratrol include red wine, grapes, and peanuts. Green tea has gallocatechin in it. Because polyphenols are natural antioxidants, it is believed that incorporating them into a person's diet can improve health and lower cancer risk. By controlling the mobilization of copper ions that are linked to chromatin and cause DNA fragmentation, polyphenols are considered to trigger the apoptotic process. It was discovered that resveratrol can degrade DNA when Cu (II) is present. Plant polyphenols also can prevent the growth of cancer cells by interfering with the proteins found in cancer cells. The polyphenol's direct bonding regulation of acetylation, methylation, or phosphorylation can influence the behavior of cancer agents (Azmi AS *et al*., 2006; Apostolou A *et al*., 2013) [4, 3].

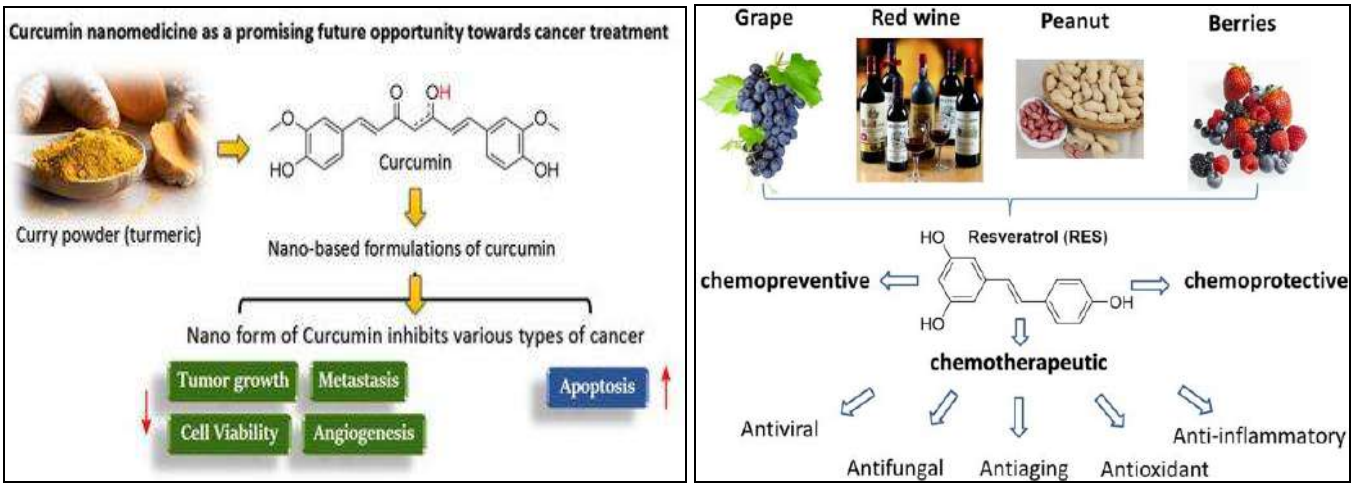

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Fig 1: (A) Curcumin as anticancerous agent (B) Food containing resveratrol.

Flavonoids

With 10,000 known structural variations, flavonoids, which belong to the polyphenolic chemicals, are a vast family of secondary metabolites found in plants. Numerous plants, including fern species and plants used in traditional Chinese treatments like the litchi leaf, have been studied for their flavonoid content and how these compounds affect cancer cells. One part of the plant, the seed, has a significant amount of flavonoid chemicals, including anthocyanins, flavones, flavonols, chalcones, and many others. Other human cancers such as hepatoma (Hep-G2), cervical carcinoma (Hela), and breast cancer (MCF-7) have also been proven to be resistant to purified flavonoids' anticancer effects. Human leukemia HL-60 cells were demonstrated to be cytotoxic by the flavonoids (4'-Methoxy licoflavanone (MLF) and Alpinumi isoflavone (AIF)) isolated from Erythrina suberosa stem bark. Apoptosis was induced by MLF and AIF via intrinsic and extrinsic signaling mechanisms. Apoptotic proteins are induced, which drastically lowers the potential of the mitochondrial membrane. Cancer cells cannot survive when their mitochondria are damaged. Additionally, these flavonoids prevent NF-B, which is necessary for cancer cell survival, angiogenesis, and proliferation, from being expressed (Cao J *et al*., 2013) [7].

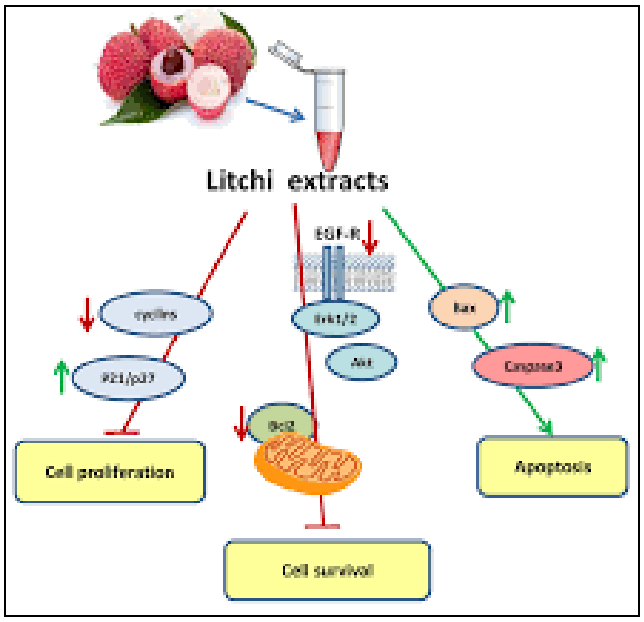

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Fig 2: Litchi extracts containing flavonoid-anticancerous agent

Brassinosteroids

Brassinosteroids (BRs) are naturally occurring substances that are present in plants and which have a variety of functions, including regulating hormone signaling to control cell development and differentiation, elongation of stem and root cells, and resistance and tolerance to disease and stress. Two naturally occurring BRs have been employed in studies with malignant cells to show that they have anticancer capabilities. On a variety of cancer cell lines, including T-lymphoblastic leukemia CEM, multiple myeloma RPMI 8226, cervical carcinoma HeLa, lung carcinoma A-549, and osteosarcoma HOS cell lines, 24-epibrassinolide (24-epiBL) and 28-homocastasterone (28-homoCS) have shown anticancer effects. Prostate cancer and breast cancer cell lines are also included (Malíková J *et al*., 2008; Steigerová J *et al*., 2010; Steigerová J *et al*., 2012) [18, 22, 23].

Medicinal plants with anticancer activities

The majority of natural substances used in medicine come from plants. The incidence of cancer is typically lower in cultures that use a lot of natural herbal items. As an illustration, the main dietary source of saponins, which have been proposed as potential anticancer agents, is soybeans. Recently, there has been a lot of interest in looking for plants that can be used to cure and prevent cancer. For this reason, numerous studies have been conducted on plant extracts. The goal of the current study is to examine the potential anticancer effects of historically used medicinal herbs.

Solanum nigrum

Solanum nigrum is a member of the Solanaceae family. It is frequently referred to as deadly nightshade or black nightshade makoy. It has health-promoting qualities like hepatoprotective, antibacterial, antioxidant, and cytotoxic characteristics. Diosgenin is one of the active components that is thought to be responsible for the *Solanum nigrum*-supported anticancer effect. The HeLa Cell Line was evaluated for its inhibitory effect on the fruit of *Solanum nigrum* methanolic extract. Trypan blue dye exclusion was used to determine the cell line's % viability. Using the MTT and SRB assays, *Solanum nigrum* cytotoxicity was assessed in HeLa cells. By employing the SRB assay, *Solanum nigrum* methanolic MTT assay also demonstrated inhibitory effects on the HeLa cell line in the concentration range of 10 mg/ml to 0.0196 mg/ml. *Solanum nigrum* can be employed as an anticancer agent because, according to the assay, its methanolic extract exhibits greater action on HeLa cell lines and less activity on Vero cell lines. (Sanjay Patel *et al*., 2009).

Tinospora cardifolia

One of the most beneficial ayurvedic herbs, giloy is used as a tonic, aphrodisiac, blood purifier, digestive aid, diuretic, expectorant, stomachic, rejuvenating agent, appetizing agent, and anti-inflammatory agent. Due to its numerous medical benefits, Giloy is referred to as Amrita in Ayurvedic literature. It is also claimed to extend the human lifespan by shielding against several chronic disorders. Giloy's roots and stem both contain starch that can be used to treat chronic diarrhea and dysentery. Fresh juice is used to treat plexopathy, anemia, cough, asthma, jaundice, seminal weakness, chronic fever, gout, vomiting, cardiac debility, skin illnesses, leprosy, and other conditions. Additionally, it is utilized to support, and lower cholesterol, prevent cancer, treat cancer, and protect the liver. It serves as a potent anti-aging agent. Tinosporin, perberillin, palmarin, and berberine are the four primary chemical components of plants. Giloin, gilonin, and gilosterol are produced from fresh stem barks. From this plant, hypoglycemia agents and phenolic lignin have also been extracted (Rumana Ahmad *et al*., 2015).

Source: https://indi-shop.com/wp-content/uploads/2019/11/guduchi-tinospora-cordifolia.jpg

Fig 3: *Tinospora cardifolia*

Momordica dioica

Momordica dioica, a perennial dioecious climber that belongs to the Cucurbitaceae family, is also known in India by the names kankro, kartoli, Kantola, kantroli, ban Karola, and janglee karela. It is generally known as a spiny gourd, teasel gourd, or small bitter gourd. The medical benefits of *Momordica dioica* include antitumorigenic, analgesic, anti-diabetic, anti-inflammatory, and anti-allergic activity. The MMT assay was used to examine *Momordica dioica* methanolic seed coat extract's ability to inhibit the proliferation of human breast and lung carcinoma cell lines, and the results revealed increased inhibition against both of the tested carcinoma cell lines. *Momordica dioica* methanolic seed coat extract boosted cell growth inhibition

in both of the treated cancer cell lines at a concentration of 100 g/mL (50% cell inhibition at a dose of 50 g/mL) (Gayathri Sukumar *et al*., 2016).

Source: https://images.app.goo.gl/nXnLXfifQrRhbrNm9

Fig 4: *Momordica dioica*

Cynodon dactylon

Cynodon dactylon, a plant belonging to the Family poaceae, is believed to have a wide range of therapeutic uses, including the competence to cure dysentery, prostatitis, and urinary tract infections as well as act as an anti-helminthic, anti-diuretic, anti-inflammatory, and hepatoprotective substance. Diabetes, jaundice, renal issues, urinary tract infections, gastrointestinal diseases, constipation, and stomach pain have all been treated with it historically. The entire plant is used for diuretics, dropsy, syphilis, wound infection, and piles. *Cynodon dactylon* is used as an antihistamine for dysentery and nose bleeding. Astringent plant juice is applied topically to cure recent cuts and wounds. Chronic diarrhoea, epilepsy, catarrhal ophthalmia hysteria, and insanity are all conditions it is used to treat. Rheumatic conditions, anasarca, calculus, carbuncles, cough, hypertension, and snake bites are all treated with the herb as folk medicine (Gunji venkateswaralu *et al*., 2015).

Source: https://images.app.goo.gl/15z5wWvfHLJBN1yp7

Fig 5: *Cynodon dactylon*

Drosera indica

With over 170 species, the insectivorous plant genus *Drosera* is widely distributed. *Drosera peltata* J.E. Sm.ex. *Wild, Drosera burmannii Vahl*, and *Drosera indica* L. family-Droseraceae have all been identified as existing in India at various sites. These species play a crucial role in the Ayurvedic recipe for Swarnabhasma (Golden ash). Swarnbhasma (golden ash) is used to treat a variety of clinical indications, such as memory loss, poor vision, infertility, generalised body weakness, and the occurrence of early ageing. Additionally, it is utilised to treat conditions including rheumatoid arthritis, diabetic mellitus, bronchial asthma, and mental disorders. When evaluated against several *in vitro* models, the ethanolic and aqueous extract of *D. indica L* exhibited substantial anti-oxidant and anticancer effects. Action might be the cause of the antioxidant capacity. Thus, *D. indica* L extracts can be employed in the nutritional or pharmaceutical industries to prevent diseases caused by free radicals as a promising natural source of an antioxidant and anticancer agent (Raju Asirwatham *et al*., 2013).

Source: https://images.app.goo.gl/s2PB1jMzbuMsNq5c7

Fig 6: *Drosera indica*

Barleria grandiflora

Barleria grandiflora, also known as Dev Kornati in Marathi, is a member of the Acanthaceae family and is extensively distributed throughout central India, particularly in the Vidarbha region of Maharashtra. An ethnobotanical study found that leaf juice is used to cure mouth ulcers. Glycosides such barlein, shanzhiside, and methyl ester make up the majority of the leaf and stem. MeBG had a direct, concentration-dependent cytotoxic effect on the A549 and DLA cell lines; the IC 50 values were reported to be 143.4 g/ml (MeBG) and 210.8 g/ml (WtBG), respectively. Additionally, the IC 50 value was determined to be 217.8 g/ml and 137.2 g/ml (MeBG) (WtBG). Both extracts had IC50 values of 148.7 g/ml (MeBG) and 152.6 g/ml, respectively, while being less toxic to the Vero cell line (WtBG). *In-vitro* cytotoxicity testing revealed that MeBG is more hazardous to DLA tumour cells than to the healthy A-549 cell line (Nishant Manglani *et al*., 2014).

Source: https://images.app.goo.gl/SHNGuWRonJdcdLfw7

Fig 7: *Barleria grandiflora*

Moringa oleifera

Drumstick, also known as *Moringa oleifera (M. oleifera*), is a plant that is grown extensively throughout Southeast Asia, particularly in Pakistan, Thailand, India, and the Philippines. It is a member of the Moringaceae family. It has a long history of use as a food plant in Thai cuisine and traditional Indian medicine. The leaves are a great source of beta-carotene, essential amino acids, and vitamins and minerals. As a result, it is used in many countries as a source of nutritional supplements and growth boosters. *M. oleifera* is supposedly used to cure internal abscesses, rheumatism, ascites, infection, and hiccough in addition to its nutritional benefits. Numerous recent studies have discussed *M. oleifera's* capacity to fend against diseases. Hyperglycemia and dyslipidemia can be reduced by the leaf extract. To investigate the antiproliferation, cells from HepG2, Caco-2, MCF-7, and human fibroblasts were employed (Suphachai charoensin *et al*., 2014).

Source: https://images.app.goo.gl/WFFezczLoE38fzb37

Fig 8: *Moringa oleifera* (Leaf, seed, flower, fruit)

Table 1: Medicinal Plants with Anti-Cancer activity

Sr. No	Botanical name	Family	Active constituent
1	*Allium sativum*	Liliaceae	Alliin, allicin alliin, alliinase
2	*Actinidia chinensis*	Actinidiacea	Polysaccharide is known as "ACPS-R
3	*Aloe ferox, Aloe barbadenis*	Liliaceae	Aloe-emodin, emodin, aloin
4	*Ananas comosus*	Bromeliaceae	Bromelain
5	*Angelica sinensis*	Umbelliferae	Polysaccharide fraction “AR-4”
6	*Annona species*	Annonaceae	Acetogenins
7	*Arctium lappa*	Compositae	Potent anticancer factor Bromelain
8	*Astragalus membranaceus*	Papilionaceae	Swainsonine
9	*Agapanthus africanus*	Agapanthaceae	Isoliquiritigenin
10	*Aglaila sylvestre*	Meliaceae	Silvesterol
11	*Betula utilis*	Betulaceae	Betulin
12	*Camellia sinensis*	Theaceae	Epigallocatechin gallate
13	*Catharanthus roseus*	Apocynaceae	Vinblastine, Vincristine
14	*Chlorella pyrenoidosa*	Oocystaceae	Lysine
15	*Colchicum luteum*	Liliaceae	Colchicines demecolcine
16	*Combretum caffrum*	Combritaceae	Combretastatin
17	*Corcus sativus*	Iridaceae	Safranal, Crocetin, Crocin.
18	*Echinacea angustifolia*	Asteraceae	Arabinogalactan,
19	*Fagopyrum esculentum*	Polygonaceae	Amygdalin, Rutin
20	*Ginkgo biloba*	Ginkoaceae	Ginkgolide-B, A, C and J
21	*Glycine max*	Leguminosae	Zinc, selenium, vitamins (A, B1, B2, B12, C, D, E, and K) B12, C, D, E, and K)
22	*Glycyrrhiza glabra*	Leguminosae	Glycyrrhizin
23	*Gossypium barbadense*	Malvaceae	Gossypol
24	*Gyrophora esculenta*	Umbilicariaceae	Polysaccharides β-glucans, α-glucans
25	*Lentinus edodes*	Agaricaceae	Lentinan
26	*Linum usitatissimum*	Linaceae	Cynogenetic glycosides, Lignans
27	*Mentha species*	Labiateae	Monoterpene ketones
28	*Ochrosia elliptica*	Apocynaceae	Ellipticine and 9-methoxy ellipticine
29	*Panax ginseng*	Aralaceae	Ginsenosides, Panaxosides
30	*Picrorrhizia kurroa*	Scrophulariaceae	Picrosides I, II, III and kutkoside
31	*Podophyllum hexandrum*	Berberidaceae	Podophyllin,astragalin
32	*Taxus brevifolia*	Taxaceae	Taxanes, taxol cepholomannine
33	*Withania somnifera*	Solanaceae	Withanolides, Withaferin

Table 2: Some medicinal plants as anticancer agents (K. Kathiresan *et al*., 2006) [14].

Botanical Name (with Hindi/Common Name)	Family	Main Active Components	Parts Used
Acrorus calamus (Bach)	Araceae	Asarone, eugenol, methyl eugenol, palmitic acid and champene	Rhizome
Agrimonia pilosa (Hairy Agrimony)	Rosaceae	Agrimonolide, flavonoid, tannin, triterpene and coumarin	Whole plant
Alphitonia zizphoides	Rhamnaceae	Zizphoisides(A,C,D,E triterpenoid saponins)	Whole plant
Alstonia scholaris (Devil tree)	Apocynasaceae	triterpenes and latex	Bark
Amorphophallus campanulatus (Suran)	Araceae	Leucine, Isoleucine, lysine stigmasterol,β-sitosterol	Corm
Andrographis paniculata (Kalmegh)	Acanthaceae	Flavonoid, andrographin and andrographolide	Whole plant
Aricennia alba	Avicenniaceae	Napthoquinolines and their analogues (avicequinones A,B,C)	Whole plant
Azadirachta indica (Neem)	Meliaceae	Tannin, β-sitosterol, nimbin, carotene	Bark, Leaf,Flower
Bruguiera exaristata	Rhizophoraceae	alkaloid, inositol	Whole plant
Bruguiera pariflora	Rhizophoraceae	Tannin and phenolic compounds	Whole plant
Caesalpinia bonduc (Kantkarej)	Caesalpiniaceae	Caesalpins (α,β,γ,δ,ε) and homoisoflavone	Whole plant
Cajanus cajan (Arhar)	Fabaceae	Many essential amino acids	Leaf, Seed
Calophyllum inophyllum (Sultanachampa)	Clusiaceae	Quercetin, xanthone, biflavonoid, neoflavonoid, benzophenone and β-sitosterol	Whole plant
Camellia sinensis (Green tea, Black tea)	Theaceae	Chrysophanol, isochrysophanol, rhein and β-sitosterol	Leaf
Cassia absus (Chaksu)	Caesalpiniaceae	Hydrocyanic acid, delphinidin and cyaniding	Leaf
Cayratia carnosa (Amalbel)	Vitaceae	Sesquiterpene lactone and lignin	Whole plant
Ceiba pentandra (Saphed simal)	Bombacaceae	Tetracyclic terpenoid and β-sitosterol	Root, bark
Cissus quadrangularis (hadjod)	Vitaceae	Flavonoid, flavones, limonoid, limonene, nobiletin, and tangeretin	Whole plant
Citrus limon (Nibu)	Rutaceae	Resin	Fruit
Cycas rumphii (Kama)	Cycadaceae	Plant contains essential oil, coumarins (ellagic acid derivatives)	Bud, Flower
Decaspermum fructicosum (Christmas bush)	Myrtaceae	Volatile acids(eugenol, acetyl eugenol, pinene) and tannin	Whole plant
Eugenia caryophyllata (Laung, clove)	Myrtaceae	Dimethlsulfone, kaempferol-diglucoside and caffeic acid	Whole plant, flowerbud
Equisetum byemale (Common horsetail)	Equisetaceae	Geranin, tannin, citric acid	Whole plant
Geranium robertianum (Herb robert)	Geraniaceae	Triterpenoid saponin (glycyrrhizin, glabranin), isoflavone, coumarin, triterpene sterol (β-amerin stigmasterol), eugenol and indole	Whole plant
Glycerrhiza glabra (Mulathi)	Fabaceae	Monophenolase, catalase, cytochrome c-oxidase, anthocyanins and caffeic acid Kamlolenic, conjugated dienoic, oleic, lauric, palmitic and stearic acids.	Rhizome
Ipomoea batatas (Sakkarkand)	Convolvulaceae	Essential oils (menthol,menthone, limonene)	Stem (tuber)
Mallotus philippensis (Sindur)	Euphorbiaceae	Vitamins (A,C)	Whole plant
Mentha arvensis (podina)	Lamiaceae	Quercetin, β-sitosterol, saponin and glucoside	Whole plant
Moringa oleifera (Mungana)	Moringaceae	Dipentene and d-linalool	Leaf, Root, Bark
Mussaenda raiateenisis	Rubiaceae	Plant contains essential oil and crystalline furocoumarin	Whole plant
Pandanus odoratissimus (Kevda)	Pandanaceae	Dikitonepongamol, glabrin and karanjin	Whole plant
Pastinaca sativa (Parsnip)	Umbelliferae	Selenium, ayanin (flavonoid) and β-sitosterol	Root, Fruit
Pongamia pinnata (karanj)	Fabaceae	Monocyclic sesquiterpene	Whole plant
Physalis angulata (wild tomato)	Solanaceae	Alkaloids (premnine, ganiarine, ganikarine)	Whole plant
Piper longum (pipli)	Piperaceae	Ca, Fe and Vitamins (A,B,C)	Whole plant
Premna oblusifolia (Agetha)	Verbanaceae	Glycosides of quercetin, isoquercitrin, kaempferol 3-flucoside,lupenone	Whole plant
Taxodium distichum	Taxaceae	Taxol(diterpene)	Seed
Vernonia cinerca	Asteraceae	Lupeol, stigmasterol and β-sitosterol	Whole plant

Table 3: Additional list of anticancer plants

Botanical name	Family	Parts used
Allium bakeri	Liliaceae	Bulb
Barberis aristata	Berberidaceae	Whole plant
Cedrus deodara	Pinaceae	Seed
Celitis Africana	Ulmaceae	Bark, root
Curtisia dentata	Comaceae	Bark, leaf
Eucomis autumnalis	Hyacinthaceae	Bulb
Euphorbia ingens	Euphorbiceae	Latex
Ganoderma lucidum	Basidiomycetes	Whole plant
Gentiana spp.	Gentianaceae	Root

Gynura pseudochina	Compositae	Root
Hypoxis bemerocallidea	Hypoxidaceae	Corm
Luisia tenuifolia	Orchidaceae	Whole plant
Lyngbya gracilis	Ocillatoriaceae	Fruit
Martynia annusa	Martyniaceae	Leaf
Periploca apbylla	Asclepiadaceae	Whole plant-milky juice
Pillosporum viridiflorum	Pittosporaceae	Bark, root
Polygala senega	Polygalaceae	Root
Prunus spp.	Rosaceae	Bark
Psychotria insularum	Rubiaceae	Whole plant

Conclusion

Many studies have been conducted on the use of medicinal plants to cure cancer, and some plant-based remedies have even been sold as cancer preventatives. By restoring the body's homeostasis and training the tissues, these plants may strengthen the host's defenses against illness. According to several investigations, the presence of antioxidants in these plants is what gives them their anticancer properties (*viz*., vitamins, carotene, enzymes, minerals, polysaccharides, polyphenols, flavonoids, lignins, xanthones, etc.). Therefore, after being isolated and identified, the different combinations of these plants' active ingredients can be created. These combinations must then be further evaluated for their synergistic effects. The creation of a dosing regimen and a uniform dose may be crucial to the treatment of cancer. Given how quickly the cancer is spreading, it appears to be making an urgent and effective effort to ensure the health of both humans and animals. There is a huge potential for obtaining powerful anticancer drugs from medicinal plants, but this requires careful study.

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