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A Review on Anti-cancerous herbs in Sidha system of Medicine.

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Abstract

The term “cancer” was used for the first time by Hippocrates, father of western medicine who applied Greek words “Carcinoma” & “Karakinos” to describe tumor. Cancer is uncontrolled growth of abnormal cells in the body. Siddha medicine is the traditional Holistic Medicine, used plant derived products for cancer care is not merely a system of medicine, Rather it is a way of the Herbal Medicines are being used by 75 – 80% of world population. Especially those living in the developing countries. Those suffering from cancer are included to use herbal medicine due to hope to cure disease improvement, preventing disease to convert to metastatic form, supporting immunity system reducing stress & relaxation.

Keywords: Cancer, Apoptosis, Herbal-drug, Herbal medicine, chemo preventive.

Introduction

Cancer is a leading cause of world wide, finding a cure for cancer remains one of the today's biggest challenges. According to WHO statistics, 80% people drugs confirmed by FDA from 1984 to 1994, were isolated from natural sources specially plants. Among 121 drugs prescribed for cancer treatment 90, are derived from herbal medicine. A study reported that 48 drugs were obtained natural products including: Vinca alkaloids, taxanes, podophyllotoxin, Anthracyclines. The main aims of using herbal medicine in cancer treatment are: Primary Prevention of cancer through creating an unfavorable environment for growth of cancer cells, prevention of a recurrence of cancer, increasing body's immune system & reducing side effect resulting from using modern treatment methods including chemotherapy & Radiotherapy.

Synergetic & buffering principles are applied for combination of different plants. It was reported that the combination of plants increases therapeutic effects & reduces the side effects. Herbal medicine are sophisticated natural compounds influencing at the same time the different phase of disease through different mechanism. It have wide therapeutic applications, being suitable for treating chronic diseases.

Two kind of herbal medicines:

Two classes of herbal medicines include immunomodulation herbs & chemo preventive or Adaptogenic herbs.

Immunomodulation herbs:

One of key roles of herbal medicine is cancer treatment is their immunomodulatory effect. On the other hand most cancer patients, experience attenuated innate & cellular immunity [Th1]. A vast majority of herbal medicines & herbal complexes stimulate innate immunity.

Example:

**Sophoraflavescens* (Fabaceae) was shown to increase leukocytes & promotes immune response.

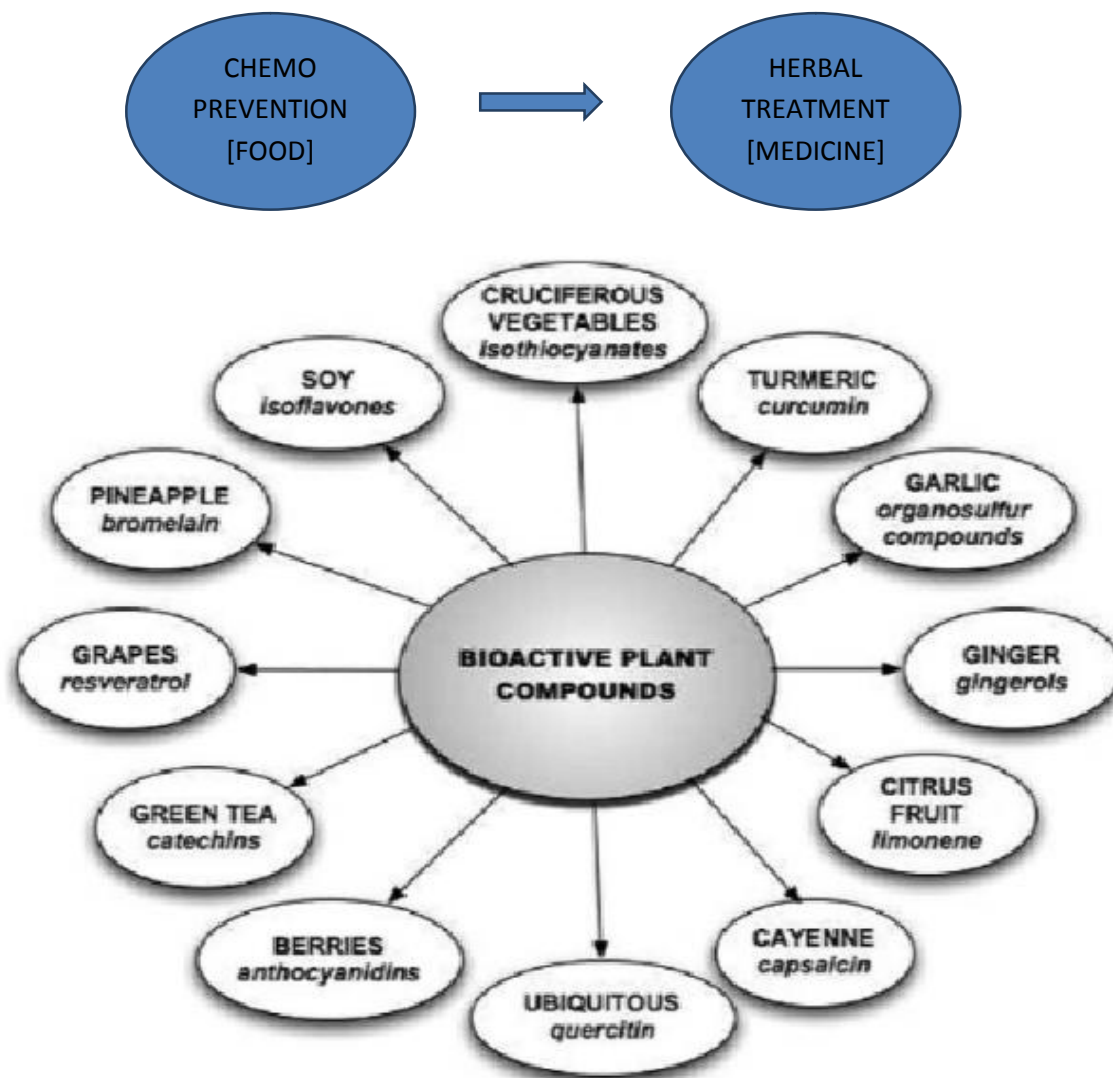
**ScutellariaBabicalensis* (Lamiaceae) belongs to toxin clearing plant group & having anti tumour. It inherits platelet aggregation & induce apoptosics.

Chemopreventive herbs:

Chemoprevention is a cancer inhibiting strategy using synthetic or natural complexes to interface or prevent Carcinogenesis development.

**Curcuma longa* (zingiberaceae) *curcumin*, inhibits cycloeskinase -2 Production in epitilal colon cells. On the other hand , it blocks NF-KB signaling pathway through controlling 1kb enzyme phosphoregulation, which finally induces apoptosis in cancer cells.

From prevention to treatment



Plants derived anticancer agents:

Plant derived anticancer agents in clinical use can be divided into four important groups

Vinca Alkaloids, Taxanes, Podophylloxin, Camptothecins.

1. Vinca Alkaloid:

* The first herbal anticancer medicine was Vinca Alkaloids of Vinblastine [VLB] & Vincristine [VCR]. These herbal complexes were isolated from Vinca rosea [Apocryaceae]

*Vinblastine is widely used to treat breast cancer, Hodgkin's lymphoma [ABVB] & Kaposin's Sarcoma.

*Vincristine is administered for treating severe lymphoblastic leukemia, non-Hodgkin's leukemia & William's tumor.

*Vinorelbine is widely used in treatment of non-small cell lung cancer [NSCLC]

Mechanism of Actions:

*The antitumor mechanism of vinca Alkaloids is inhibitors of microtubule assembly through tubulin interaction & disruption leading to termination of cell division.

2. Taxanes:

*Taxanes are presenting considered as the most effective antitumor agent. Taxanes are first choice drugs for treating Breast, Ovary, lung & other metastatic cancer.

* Taxanes that is paclitaxel [Taxol] & Docetaxel [Taxotese] as well as taxanes homolog's are derived from pacific yewbark [TaxusBrevifolia]

Mechanism of Actions:

*Taxanes prevents microtubules depolymerisation by in other words, taxans inhibits cell proliferation by terminating meiosis in metaphase & anaphase resulting in apoptosis.

3. PodoPhyllotoxins:

*Epipodophyllotoxin is an isomer of podophyllotoxin family extracted from the root of indianpodophyllum plant [podophyllumpeltatum].

*Etoposide & Teniposide are two active & semi synthetic compounds.

*Etoposide is used in the treatment of choriocarcinoma, lung cancer, ovarian & testicular cancer.

*The approved indication for Teniposide are central nervous system tumors lymphoma, & bladder cancer.

Mechanism of Actions:

Epipodophyllotoxin such compounds act through inhibiting topoisomerase.

Examples in table format:

S.no	Plant Name	Family	Part used	Active Constituent	Uses in Siddha
1	<i>Aegle marmelos</i>	Rutaceae	Fruits	Lupeol, eugenol	Hepotocellular carcinoma
2	<i>Aglaila sylvestre</i>	Meliaceal	Fruits & Flowers	Silvesterol	Breast & Lung Cancer
3	<i>Allium cepa</i>	Liliaceal	Rhizome	Allicinalliin,diallydisulphide, Quercetin,lavenads, Vitamin C and E	ColorectalCancer
4	<i>Allium sativum</i>	Liliaceal	Rhizome	Alliin,allicinalliin,alliance, s-allylcystienediallytrisulphide and nethylallytryshulphide	Colon Cancer
5	<i>Aloe barbademis</i>	Liliaceal	Stem	Aloe-emodin ,emodin Aloinacemannan	OralCancer
6	<i>Alpinia galanga</i>	Zingiberaceal	Rhizome	AcetoxoycharicolAcutate,pinozembrin, Galagin.	Breast Cancer
7	<i>Andrographis paniculata</i>	Acanthaceal	Whole Plant	Andrographolide	Breast Cancer
8	<i>Anona muricata</i>	Annonaceal	Leaves	Acetogenins	Breast Cancer
9	<i>Apium graveolens</i>	umbelliferae	Leaves	Apigenin	Stomach Cancer
10	<i>Azadirachta</i>	Meliaceal	Leaves	Liminoids, Limbolide	Breast Cancer
11	<i>Lycopericon esculentum</i>	Solanaceae	Fruit	Lycopene	Hepato cellular carcunima
12	<i>Curcuma longa</i>	Zingiberaceal	Rhizome	curcumin	Neck squamous cell carcinoma
13	<i>Mangifera indica</i>	Anacardiaceal	Bark, stems	Petacyclitriterpene Mangiferin,xanthone	Breast Cancer
14	<i>Cannabis sativa</i>	cannabinaceae	Flowers	Cannabinoids	Prostate Cancer
15	<i>Vitis vinifera</i>	Vitaceal	Fruit	Resevratrol	Oral Cancer
16	<i>Nigella sativa</i>	Ranunculancel	Seed	Thymoquinone	Numerous Cancer [Pancreatic Clolon,prostate,breast,]
17	<i>Malus domestica</i>	Rosaceal	Fruit	Flavonoids [quercetin]	Colorectal Cancer
18	<i>Punica granatum</i>	Punicaceal	Fruit	Fruit Juice	Colon Cancer
19	<i>Trigonella foenum</i>	Fabaceal	Seeds	Disogenin	Breast Cancer
20	<i>Plumba gozeylancia</i>	plumbaginaceal	Flower	Flavonoids quinones	Hepatocellular carcenomiaskincancer

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