

OVERVIEW OF THE PLANTS USED IN MANAGEMENT OF CANCER, AIDS AND HEPATOTOXICITY

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CANCER

- Cancer or malignancy is a form of abnormal development and transforms normal cells into cancerous cell.
- The cells begin to grow and multiply, continually forming a tumor or cancerous growth.

TYPES OF CANCERS

- **CARCINOMAS** :- Carcinomas affect the epithelial tissue that cover or line the body organ. They include breast cancer, lung cancer, cancer of pancreas and stomach.
- **SARCOMAS** :- Sarcomas affect the tissues derived from mesoderm such as connective tissue, they include bone tumors, muscle tumors or cancers of lymph nodes.
- **LYMPHOMAS** :-Lymphomas are the cancers of lymphatic nodes, spleen and reticuloendothelial tissues.
- **LYPOMAS** :-Lipomas are tumors that originate from adipose tissues.
- **LEUKEMIAS** :-leukemias result from excessive formation of WBCS (white blood corpuscles) or leucocytes in bone marrow.

VINCA

- BIOLOGICAL SOURCE :-Aerial parts of plant *Vinca rosea* also designated as *Catharanthus roseus* belonging to family Apocynaceae
- CHEMICAL CONSTITUENT :-Many alkaloids having isolated f vincristine (lucocristine) and vinblastine (vincalucoblastine) are the alkaloids having antineoplastic activity is about 0.002% from crude drug
- Vincristine is structurally similar to Vinblastine but has formic group rather than methyl group on indole ring
- USES :- Vincristine is used principally in treatment of acute lymphocytic leukemia in children . It is used in lung cancer, breast cancer . Vincristine has superior anticancer activity than vinblastine but is more neurotoxic .Vinblastine is mainly used in generalized Hodgkin's lymphoma.

TAXOL

- BIOLOGICAL SOURCE : It consist of dried leaves,bark and roots of *Taxus brevifolia* belonging to family Taxaceae
- CHEMICAL CONSTITUENT :-It contain taxol (paclitaxel)0.01-0.02% It contains baccatin III 0.3% from leaves which can be converted to taxol.
- USES :-Taxol is used chemically in treatment of ovarian cancer breast cancer and other cancer. Taxoteri (docetaxel) a semisynthetic side chain analogue of taxol as improve solubility and used in treatment of breast cancer.

PODOPHYLLUM

- BIOLOGICAL SOURCE :-It consist of dried rhizomes and roots of *Podophyllum peltatum* and *Podophyllum hexandrum* belonging to family Berberidaceae
- CHEMICAL CONSTITUENT :- Podophyllotoxins, beta - peltatin and alpha -peltatin
- USES :- It is having cytotoxic action and used in the treatment of wards. Etoposide a semisynthetic derivative of podophyllotoxins is used in the treatment of small cell lung cancer , testicular cancer as well as lymphoma and leukemia

CAMPTOTHECIN

- BIOLOGICAL SOURCE :-It consists of the dried stem wood of plant *Camptotheca accuminata* belong to family Nyssaceae
- CHEMICAL CONSTITUENT :- Camptothecin, 9 aminocampyothecin, 10-methoxy camptothecin
- USES:- It is used as anticancer agent in treatment of leukemia and liver cancer.

HEPATOPROTECTIVE

- Hepatoprotective drugs are often prescribed medication. It is a broad group of substances ,which have protective and regenerating effect on the liver cells.

HEPATOPROTECTIVE DRUGS

● SILYMARIN

- The leaves and fruits of the plant *Silybum marianum* belonging to family Compositae
- CHEMICAL CONSTITUENT :-It contain several flavonolignans sylibin, sylandrin, silicristine, 3deoxysilicristine, silimonine, silidonine
- USES :-Flavonolignans exerts marketed hepatoprotective activity in preventing galactosamine induced cell lesions, silibin stimulates protein synthesis in hepatocytes. Silimarin a purified extract from plant is used standard to test other drug for hepatoprotective activity.

DANDELION ROOTS

BIOLOGICAL SOURCE :-Top root and vertical rhizomes of plant *Taraxacum officinate* family Compositae

CHEMICAL CONSTITUENT :-It contain inslin and other polysaccharides, sesquiterpene lactone like tarixical and teraxal. It also contains caffeic acid and careteoids,

USES :-It is used as diuretic, tonic, hepatic stimulant and ant rheumatic.

KALMEGH

- BIOLOGICAL SOURCE :- Kalmegh consists of leaves or entire aerial part of *Andrographis paniculata* belonging to family Acanthaceae
- CHEMICAL CONSTITUENT:- It contains flavonoids, sesquiterpenes and lactone. The hepatoprotective principle is diterpene lactone andrographolide.
- USES:-It is used to protect liver against hepatic microsomal lipid peroxidation caused by carbon tetrachloride and alcohol.

PICRORHIZA

- BIOLOGICAL SOURCE :- It is dried rhizome of plant *Picrorhiza kurroa* belong to family Scrophulariaceae
- CHEMICAL CONSTITUENT :- The rhizome contain steroidal glycosides, picroside -I ,picroside-II and kutkoside.
- USES :-The extract posses hepatoprotective activity against carbon tetrachloride induced hepatotoxicity.

TURMERIC

- BIOLOGICAL SOURCE :- It is dried rhizomes of plant *Curcuma longa* belonging family Zingiberaceae
- CHEMICAL CONSTITUENT :- It consist of Curcuminoids like curcumin , sesquiterpene like zingiberine and volatile oil.
- USES :- Curcuminoids have strong hepatoprotective action. It is used as antiseptic, stomachic, diuretic and aromatic

AIDS

- AIDS is a acquired immunodeficiency syndrome ,usually fatal illness caused by a RETROVIRUS known as a human immunodeficiency virus (HIV)
- HIV is a retrovirus which utilizes the enzyme reverse transcriptase for the conversion of its RNA to DNA. Thus enabling it become incorporated into the DNA of the host.
- Natural products and synthetic compound are screened on large scale for anti HIV activity. It is considered that there are some 10 stages in the replication of HIV which could be targeted in the search for an effective drug.

SAMBUL ROOT

- BIOLOGICAL SOURCE :- It consist of roots of *Ferula sambul* belong to family Umbelliferae
- CHEMICAL CONSTITUENT :- Coumarins
- USES :- It has anti HIV activity. It is also used as antispasmodic and stimulent.

CALANOLIDES

- BIOLOGICAL SOURCE :- It consist of roots of leaves and twigs of the tree *Calophyllum inophyllum* C. *lanigerium* and latex of *Calophyllum teysmalli* belonging to family Guttiferae
- CHEMICAL CONSTITUENT :- Calanolides A,B
- USES :- Anti HIV activity

SALASPERMIC ACID

- BIOLOGICAL SOURCE :- It consist of root of *Tripterygium wilfordii* belong to family Celastraceae
- CHEMICAL CONSTITUENT :- Salaspermic acid (pentacyclic triterpine) and tripterifordin (diterpine lactone)
- USES:-It shows inhibition of HIV reverse transcriptase and HIV replication in lymphocytes.

GOSSYPOL

- BIOLOGICAL SOURCE :-It consist of seeds of *Gossypium herbacium* belong to family Malvaceae
- CHEMICAL CONSTITUENT :- Gossypol
- USES :- It has inhibitory effect on HIV replication.

TRACHELOGENIN

- BIOLOGICAL SOURCE:- It is obtained from *Ipomoea cairica* family Convulvuaceae.
- CHEMICAL CONSTITUENT:- Trachelogenin
- USES :- It supress the integration of proviral DNA into cellular genome

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THANK YOU