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A REVIEW ON ANTICANCER ACTIVITY OF SOME IMPORTANT MEDICINAL HERBS.

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Abstract: Now a days pharmaceutical research has improved a quality of herbal drugs used for the treatment of different of cancer. now by using advanced knowledge of molecular science and the purification in isolation and structure clarification technique identification of various anticancer herbs become easy.. Scientist have give their number of years to establish hundreds of anticancer herbs and make various herbal preparation from their active constituents that inhibit the growth and spread of cancer without any type of side effects. These herbs have anticancer, antiangiogenesis, immunoenhancing, antioxidant, antimutagenic properties. They inhibit growth and expansion of cancer by controlling the activity of enzymes, hormones and other biological factors. The pharmacological effect of these herbs is accomplished by the complex synergistic interaction among their various active constituents. some of the chief anticancer herbs have been discussed here.

Keywords:- **Cancer, Anticancer Activities, Herbs/Medicinal Plants, Phytoconstituents**

INTRODUCTION:- A huge number of medicinal plants act as anticancer herbs in clinical experimental malignancy/tumors of various organs. Some of those malignancy /cancer are leukaemia, lymphoma, carcinoma, sarcoma, leukaemia, melanoma. The general information of these herbs have been collected from some review articles and some books authored by different authors[4-5]. Although the particular chemical constituents (phytochemicals) present in these plants thier mechanism of action and application against the various cancers are described by different authors have been mention under each medicinal plant. Medical herbs are known to have adaptable immunomodulatory and antioxidant properties, shows anticancer activities. Actually the medicinal herbs are easily available, have low cost and have no toxicity as compared to the allopathic drugs. these agent stimulate both specific and non specific immunity. They may help to host resistance against infection by restablizing body equilibrium and conditioning the body tissues[2-3,8-11]. Many reports describe that the anticancer activity of medicinal plant is due to the presence of active chemical constituent in them, which have strong antioxidants property. The antioxidants may inhibit and treat the cancer and other disease by protecting cells from damage caused by “Free Radicals”. So by consuming a food which is rich in antioxidants will give a milieu of phytoconstituents. And the non-nutritive substance present in plants that shows health-protective effects. the chief phytoconstituent antioxidants with anticancer activity include vitamins like A, C, E & K, carotenoids, polyphenols (Eg.Tannis and Galic acid), terpenoids,enzymes (Eg. Catalase and Superoxide dismutase.), polysaccharide, lignins, flavonoids (Eg. catechins, flavonones, flavones and isoflavones), minerals (Eg. copper, zinc, iodine, selenium, manganese), saponins, xanthones, alkaloids and certain pigments[1].

- **List of Some Important Anticancer Natural Medicinal Plants:-**

Name	Biological Source	Chemical Constituens	Uses
1)Aegle Marmelos	Dried fruit of a plant Aegle Marmelos Correa Ex Roxb. Family: Rutaceae	Lupeol, Eugenol, Citral, Rutin,etc.	Use in breast cancer. Use in Turberculosis.
2)Onion	Alilium Cepa. Family: Liliaceae/Alliaceae	Protein, Sugar, Allicin, Allin, Diallyl disulphide, Vitamins (C,E)	Use in stomach cancer. Use as a vermifuge.
3)Garlic	It is the ripe bulb of Allium Sativm Linn. Family Liliaceae.	Allicin, Diallyl Sulphide, Diallyl Disulphide, Allyl Propyl Disulphide, Mucilage, Vitamin C	Use in stomach and liver cancer. Use as flavouring agent,expectorant.
4)Aloe Vera	It is fleshy leaves of plant Aloe Barbadenis Miller. Family : Liliaceae	Amino Acids, Saponins, Steroids, Anthraquinones, Alexin B, Aloe-Emodin, Resins, Barbaloin.	Use in neuroectodermal tumours. Use in leukemia. Used as a purgative. Used as laxative. Used in cosmetics.
5)Alpinia Galanga	A dried rhizome of plant Alpinia Galangal, Family:Zingiberaceae	Acetoxy-Chavicol- acetate , Pinocembrin, Galangin, Caryophyllene Oxide, Eugenol Setat Acetoxy.	Used in stomach cancer. Used in lung cancer. Used in colon and prostate cancer. Used in food industry.
6)Green Chiretta	It is whole plant of Andrographis Paniculata Wall. Ex.Nees, Family :Acanthaceae.	Andrographolide Flavonoid, Andrographin, Diterpene, Lactones	Used in breast cancer and stomach cancer. Used in prostate and kidney cancer. Used in leukaemia.
7)Neem	Neem consists of the fresh or dried leaves & seed oil of Azadirachta Indica J. Family : Meliaceae	Liminoids, Nimbolide, Azadirectin, Salannin, Nimbin, Meliantriol, Nimbidin,Triterpenoid Carotene, Tannin.	Use in breast cancer, lung, liver and skin cancer.Also use in prostate cancer. Antioxidant Antiviral Antifungal Antiseptic Antiinflammatory.
8)Barberry	Berberis Vulgaris, Family :- Berberidaceae	Berberine, Beramine, Chelidonic Acid,Citric Acid, Columbamine, Hydrastine,Oxycanthine Isotetrandrine,Jacaranone, Magnoflorine, Palmatine.	Used in prostate cancer, liver cancer and leukaemia. Also used in oral cavity cancers. Antioxidant, Anti-Inflammatory, Immunoenhancing.
9)Vinca	It is whole plant of Catharanthus Roseus G. Don / Vinca Roses Linn./Lochnera Rosea (Linn.) Reichb. Family :- Apocynaceae .	Alkaloids. Vinblastine, Vincristine.	Used in breast,ovary, lung, colon, rectum, cervix and testis cancer. Also used in Hodgkin's Disease, malignant lymphoma, Neuroblastoma, Rhabdomyosarcoma.

10)Turmeric	It is dried rhizome of plant Curcuma Longa Linn./ C. Domestica Valeton, Family :- Zingiberaceae	Curcumin, Curcuminoids Turmerone DexomethoxyCurcumin.	It have antioxidant, antitumour and anti-Inflammatory properties.Used in breast cancer, lung, liver, head, neck, skin, colon and prostate cancer. It is carminative antiperiodic and tonic.
11)Strawberry	It is ripe fruit of plant Fragaria Vesca Linn. Family: - Rosaceae.	Tannin, Flavonoid, Borneol, Ellagic Acid, Vitamin C. Chalcone.	It is used as anticanceragent, antioxidant
12)Liquorice	It is consist of peeled and unpeeled roots, stolons, stems of Glycyrrhiza Glabra Linn. Family: -Leguminosae.	Flavonoids, Flavones, Isoflavones, Chalcones, Licochalcones, Glycyrrhizin, Glabranin, Glycerrhizic Acid, Eugenol, Indole, Glycyrrhetinic Acid, Coumarine.	Used in breast, stomach, lung, colon, liver, leukaemia and kidney cancer. Used as tonic, expectorant, demulcent, laxative, emollient, antioxidant, antimutagenic, antiulcer, anti-HIV, hepatoprotective, and strong anticancer.
13) Amla	It consist dried, as well as fresh fruits of the plant Emblica Officinalis Gaerth/ Phyllanthus Emblica Linn. Family :-Euphorbiaceae	Ellagic Acid, Gallic Acid, Emblicanin, Flavonoids, Quercetin, Kaempfrol, Glycosides Proanthocyanidins, Vitamin C, Emblicol, Micic Acid, Phyllembic Acid, Essential Oils.	Used in uterus, pancreas, somach, breast and liver cancer. Used in anaemia, jaundice, diarrhoea, caugh, dyspepsia, and haemorrage. Used as antioxidant, astringent, diuretic and laxative.
14) Ginkgo Biloba	It is consist of leaves obtained from dioeceous tree Ginkgo Biloba Linn. Family :- Ginkgoaceae	Ginkgetin, Ginkgolides (A,B,C,J,M) Kaempferol, Quercetin Glycosides.	Used in oestrogen-receptor negative cancer Galioblastoma, hepatocellular carcinoma, cancers of ovary & colon, Used in disease, vertigo, headache and anxiety.
15) Soyabean	It consists of seeds of plant Glycine Max Merrill /G. Soja Sieb. Family:- Papillionaceae / Fabaceae.	Isoflavones, Saponins, Genistein, Daidzein, Protein, Folate , Vitamin C.	Used in cervix,uterus, ovary, lungs, colon, stomach, pancreas,testis, urinary bladder, oral cavity, larynx and thyroid cancer. Used in nasopharyngeal carcinoma, skin cancer, neuroblastoma,rhabdomyosarcoma antioxidant.
16) Apple	It Consist Of Ripe Fruit Of Plant Malus Domestica Borkh./ M.Pumila Mill./M. Communis Dc/ M Sylvestris Hort. Family: - Rosaceae.	Quercetin Glycosides, Phloretin. Glycosides, Procyanidin, Chlorogenic Acid, Vitamin C, Epicatechin.	Useful In Various Cancer. Used As Antioxidant.
17) Noni	It Consist Of Whole Plant Of Morinda Citrifollia Linn. Family:- Rubiaceae .	Anthraquinones, Alizarin,Gueretin, Damnacanthal, Morindone, Nb10 & Nb11 RubiadinMethyl Ether Vitamins	Used In Lung Cancer And Sarcomas. Antioxidant, Hepatoprotective, Immunoenhancing Property.
18) Black Cumin	It Consist Of Dried Seeds Of Plant /Vigella Sativa Linn. Family: Ranunculaceae.	Thymoquinone, Dithymoquinone Linoleic Acid Palmitic Acid Eucalyptol Methyl Linoleate.	Used In Colon, Prostate, Pancreas And Uterus Cancer.Used In Malignant Lymphoma, Melanoma And Sarcomas. AntiInflammatory. Protects Against Liver Cancer.
19) Tulsi	Tulsi Consist Of The Fresh And Dried Leaves Of Ocimum Sanctum Linn. Family : Labiatae	Volatile Oils Eugenol, Linolenic Acid, Oleanic Acid, Rosmarinic Acid, Falvonoids, Ursolic Acid. Apigenin Luteolin, O-Glucuronide, Orientin, Sesquiterpenes, Inonoterpenes, Molludistin. Carvacrol And	Used In Breast Cancer, Liver Cancer And Sarcoma. Have Immunomodulatory And Antioxidant Activity. Use As Antibacterial, Antiviral, Antiprotozoal, Anti-Inflammatory Memory Enhacer, Anticancer,

		Sesquiterpine Hydrocarbon Caryophyllene.	Diuretic, Expectorant.
20) Panax Ginseng	Ginseng Is The Root Of Plants Of Panax Ginseng Mey./ P. SchinsengNees. Family : Araliaceae.	Ginosenoside Panaxadiol Ginsenosides (Rb1, Rb2,Rc,Rd,Rg3,Rh2) Panaxatriols Ginsenosides (Re.Rf,Rg1,Rg2,Rhi)	Used In breast,Ovary, Prostate And Colon Renal Cell Carcinoma, Malignant Melanoma, Malignant Lymphoma, Leukaemia. It is Used As Antistress, Hepatoprotective Haemopietic, Immunoenhancing, Chemoprotective, Anti-Inflammatory
21) Hedyotis Diffusa.	It is Genus Of Flowering Plant Of Oldenlandia Diffussa. Roxb, Family :- Rubiaceae	Oldenlandosides, Stigmasterol, Ursolic Acid, Oleanolic Acid, Beta-Sitosterol, Coumaric acid And Flavonoid Glycosides.	Used In Lung, Uterus, Stomach, Ovary, Liver, Colon, Rectum and Brain Cancer. Used In Leukaemia.
22) Plumbago Zeylanica	It Is A Herbaceous Plant Of PlumbagoZeylanica Linn. Family: Plumbaginaceae.	Plumbaginisoshinanolone, Plumbagic Acid, BetaSiststerol, Trans Cinnamic Acid, Vanillic Acid, Dimethyl-7Hydroxychromone,indole-3-CarboxAldehyde.	Used In Breast Cancer, Liver Cancer,Fibrosarcoma, Malignant Ascites And Leukaemia. Used As Antioxidant, Immunoenhancing, Hepatoprotective, Neuroprotective.
23)Psoralea Corylifolia	It Is Seeds Of Psoralea Corylifaliya Linn. Family: Papilionaceae/ Fabaceae.	Bavachinin, Corylfolinin, Psoralen, Corylin, Coumarins, Psoralidin, Bakuchiol.	Used In Cancer Of Lung Cancer, Liver Cancer, Osteosarcoma, Malignant Ascites, Used As Immunoenhancing, Hepatoprotective, Antioxidant.
24) Rubia Cordifolia	It Is Dried Root Of Plant Rubia Cordifelia Linn. Sensu Hook. Family :- Rubiaceae	Rubidianin, Rubiadin, Rosemary Acid, Purpurin, Pseudopururin, Alizarin And Xanthopurin.	Used In Cancer Of Ovary, Breast, Cervix, Colon And Lung .Used As Hepatoprotective.
25) Pomegranate	It Is Ripe Fruit Of Punica Granatum Linn. Family : Punicaceae.	Alkaloids, Anthocynaidines, Vitamin C.	Used As Anticancer Used In Tumour In Albino Mice. Used In Osteoarthritis, Digestive Disorders, Arthritis, Skin Disorders.
26) Costus	It Is Plant Of SaussureaLappa C.B. Clarke. Family:Compositae/ Asteraceae.	Seaquiterpenes, Costunolide, Dehydrocostulactone, Cynaropicrin, Mokkolactone, Shikokiols, Syrining, Chlorogenic Acid.	Used In Breast Cancer, Malignant Lymphoma, Intestinal Cancer. Used As Carminative,Aphrodisiac, Anthelmintic, Tonic.
27) Black Nightshade	It Consist Of Whole Plant Of Solanum Nigrum Linn. Family : Solanaceae.	Flavonoids(Quercetin), Alkaloids (Solasodine,Solanine), Solamargine Solasonine Spirostane, Furostane, Pregnane Glycoproteins Lunasin.	Used In Cancer Of Breast, Liver,Lung And Cyst, Cancers, Choriocarcinoma And Leukemia. Used In Ulcers, skin Disease Asthma.
28) Viscum Album	It Is Whole Plant Of Viscum Album Linn./V. Costatum Gamble. Family:Loranthaceae / Viscaceae.	Lectin Alkaloids, Acetylycholine, Proprionyl Choline, Lupeol, Viscotoxin, Flavonoid And Sterol A. Lectins, Polypeptides, Digallic Acid.	Used In Cancer Of Breast, Cervix, Ovary, Lung, Stomach, Colon, Fibrosarcoma, And Leukaemia. Used In Fatigue, Nervousness, Insomnia, Agitation, Etc.
29) Giloy	It Is A Plant Of Tinospora Cordifloa (Willd) Miers Ex Hook.F. &Thoms. Family: Menispermaceae.	Berberine, Tinosporine, Giloin, Giloinin. Sequiterpenes, Diterpenes, Arabinogalactum, Syringine, Cordiol, Cordifoliosides (A & B)	Used In Cancer Of Lung, Throat, Cervix. Used As Antioxidant, Neuroprotective, Hepatoprotective, Antistress, Antiulcer, Antiasthmatic, Antidiabetic & Antipyretic.

30) Ashwagandha.	It Consist Of Dried Root Of Eithania SomniferaDunal. Family :- Solanaceae.	Anthraquiones, Proteins, Amino Acids, Starch, SitoindosidesWithanolides, Steroidal Lactones Alkaloids. Withanone, Withaferin A, Withasonidienone, Withanolide D., Withaniol, Ashwagandhanolide.	Used As Antioxidant, Anticancer And Immunoenhancing Agent. Used In Lung Colon, Breast, Cervix, Prostate, Nasophorynx& Larynx, Malignant Ascites And Sarcoma. Used As Hypolipidaemic, Anticonvulsant, Haemopietic, Neuroprotective.
33) Ginger	It Consist Of Dried Rhizome Of Zingiber Officinal Rosc. Family :- Zingiberaceae.	Gingerols, 6- Shogaol, 6-Gingerol, 6 – Paradol. Zingiberine. Zingiberol, Bisabilone, etc.	Used In Cancer Of Ovary, Colon, Cervix, Rectum, Liver,Urinary Bladder, Neuroblastoma. Used As Antioxidant, Antimutagenic Antiinflammatory.
34) Bauhinia Variegata	It Is Whole Plant Of Bauhinia Variegata Linn. Family :- Caesalpiniaceae.	Cyanidin Glucoside, Malvidin Glucosides, Peonidin Glucosides, And KaempferolGalactoside.	Use In Cancer Of Breast, Lung, Liver, Oral Cavity And Larynx And Malignant Ascites. Use As Hepatoprotective.
35) Aphanamixis Polystachya	It Consist Whole A Plant Of Aphanamixis Polystachya (Wall) Parker Family : Meliaceae	Amooranin SesquiterpenoidsDiterpenoidesLimonoid Flavonoid Saponin.	Use In Cancer Of Breast And Cervical Cancer &Leukaemia.

- **Anticancer Medicinal Plants :-**

- **Aegle Marmelos :- (Bel)**

A dried fruit of a plant Aegle Marmelos Correa ex Roxb.belonging to family :-**Rutaceae** are used. Pulp and seed of A. Marmelos contain lupeol, it shows strong anticancer activity against malignant melanoma, malignant lymphoma,breast cancer, malignant ascites and leukaemia. A Marmelos decrease side effects of chemotherapy and useful antioxidant activity[1].

Fig. Aegle Marmelos

- **Onion:- (Piyaz)**

It is allium Cepa Linn. Belonging to family:- **Liliaceae/Alliaceae.** A bulb of A Cepa Contains dially disulphide, quercetin, Flavonoid, allicin, allin and vitamins (C,E), it detoxify carcinogen, arrest cell cycle from S to G2M phase and inhibit Helicobacter pylori. Diallyl disulphide prevent stomach cancer and quercetin may treat lung and other cancers. A cepa is used as a vermifuge[9,12].

Fig. Onion

- **Garlic:- (Lasun)**

It is the ripe bulb of Allium Sativum Linn., Family:- **Liliaceae.** A bulb of A Sativum contains sulphur compounds (diallyl disulphide, diallyl sulphide, allyl propyl disulphide) and allicin. Allicin prevent the growth of liver, stomach,colon , breasts, and endometrium cancers. Sulphur compounds also inhibit the tumor cells. It is also use as flavouring agents and expectorant [9,13,26].

Fig. Garlic

- **Aloe vera :- (Indian aloe/ Ghee-kunwar)**

It is fleshy leaves of plant Aloe Barbadenis Miller, Family:- **Liliaceae** Leaves or Arial parts, pulp and roots of A.vera contain Acemannan, it stimulates immune system and shows strong anticancer activity. Aloe-emodin prevent growth and spread of stomach cancer and sarcomas. Aloe-emodin possess anticancer activity in case of neuroectodermal tumours. A.vera contain Alexin B has strong anticancer activity against leukaemia. Polysaccharide isolated from A. Vera possess anticancer and **i**mmunoenhancing properties. “Super Carbohydrates” Isolated from A. Vera protect in case of liver cancer. It stimulates immune response of the body by the activation of macrophages and releasing cytokines like interleukin, interferon and tumour necrosis factor. A.Vera inhibit metastasis of cancer,

Fig. Aloevera

inhibit genesis of cancer, regresses growth of cancer. A.vera also have antioxidant property and minimize the side effects of radiotherapy and chemotherapy. Leaves of A.vera also contains glycosides-anthracene derivatives or hydroxyanthraquinone derivatives. A.vera used as purgative, laxative and also used in cosmetics [8,14].

- **Alpinia Galanga: (Barakulanjan)**

Fig. Alpinia Galanga

A dried rhizome of plant Alpinia Galanga Willd. Family:**Zingiberaceae.** A Galanga contain Acetoxy- chavicol- acetate shows significant anticancer activity in case of stomach, colon, prostate, lung multiple myeloma, breast and leukaemia. A.galanga contain pinocembrin prevent the growth and spread of colon cancer by inducing apoptosis and arresting cell proliferation. Galangin, it is a Flavonoid obtain from A Galanga has strong anticancer activity, antimutagenic , antioxidant and anti-inflammatory properties.galangin protect in case of prostate and breast cancer.It is also use in food industry [15].

- **Green chiretta:- (Kalmegh)**

Fig. Green chiretta

It consists whole plant of Andrographis Paniculata Wall. Ex Nees,Family:- **Acanthaceae.** A paniculata contain active diterepine component i.e. Andrographolide shows immunoenhancing and strong anticancer activity against colon, prostate, breast, kidney, stomach, ovary, malignant melanoma, nasopharynx, and leukaemia. Andrographolide stimulates the function of immune systemsuch as release of interferon (an antiviral factor) production of white blood cells (the defense cells of our body) and activity of the lymphatic system (the seat of defence system). Andrographolide shows anticancer activity direct on cancer cells by arresting G0/G1 phase of cell- cycle and inducing apoptosis. Methalonolic Extract of A.paniculata i.e.Dichoromethane has strong anticancer activity against colon cancer. Extract of. A paniculata is cytotoxic in case of cancer of skin, nasopharynx, lyphocytic leukaemia.

In mice A. Paniculata shows the chemoprotective potential. A. Paniculata contains andrographin and flavonoid. A paniculata shows anti-inflammatory, anti- HIV, antioxidant, anticancer, immunostimulant and antihepatotoxic activities. A. Paniculata decrease the side effects of radiotherapy and chemotherapy. It increases the activity of protective liver enzymes [3,10].

❖ **Neem : (Margosa)**

Fig. Neem

It consist of the fresh or dried leaves and seed oil of azadirachta indica J. Family: - **Meliaceae**. There are 40 different active principles present in leaf, Steam bark and flower of A.indica called as liminoids, they possess antioxidant, anticancer, immunoenhancing and antimestatic, hepatoprotective, antifungl, antiinflammatery, antiulcer, and antiviral properties liminoides prevent growth and spread of various cancers likes breast, liver, lung, prostate, skin and stomach cancer A. indica leaves and flower contain nimbolide a natural triterpenoid, prevent the growth and spread of colon cancer malignant melanoma, malignant lymphoma and leukaemia by inducing apoptosis. Ethanolic extract of A. indica prevent the spread and growth of prostate cancer by increasing apoptosis. Nimbolode also inhibit metastasis of cancer. A. indica decreases the side effects of radiotherapy and chemotherapy. Dexamethasone tannin, beta Sitosterol,nimbin are chemical constituents present in A.indica[1].

- **Vinca: (Periwinkle)**

Fig. Vinca

It consists of whole plant of a cathranthus roseus G. Don/ Vinca. Roses Linn./ Lochnera roses (Linn.) Reichb. Family:- **Apocynaceae**. More than 70 alkaloids are present in C. Roseus are called vinca alkaloids like vinblastine, vincristine and their derivatives. Vinca alkaloids binds to tubulin in the mitotic spindle and arrests cancer cell proliferation i.e they prevent microtubules formation and arrests mitosis in metpase. Vinca alkaloids induce programmed cell death i.e. Apoptosis and prevent formation of new blood vessels i.e. Angiogenesis. Vinca alkaloids inhibit growth and spread of cancers such as cervix, lung, rectum, colon, breast, ovary, testis and kidney cancer. These alkaloids shows strong activity against Hodgkins disease, malignantlymphoma,

neuroblastoma, multiple myeloma, rhabdomyosarcoma, Leukaemia and various sarcomas [3, 8,16,28].

- **Turmeric: (Haldi)**


Fig. Turmeric

It consists of dried rhizome of plant curcuma Longa Linn./ C Domestica Valgeton, Family:- **zingiberaceae.** C. longa rhizome contain curcumin (diferuloyl methane) and curcuminoids, supress cancer at every step, i.e. initiation,. Growth, and metastasis. Pigment colour of haldi i.e. curcumin arrest the cancer cells proliferation in G2/S phase and promote apoptosis. Synergistic effect of curcumin and genistein prevent the growth and spread of oestrogen- positive breast cancer. Curcumin possess antitumour, antioxidant and anti-inflammatory properties. It prevent angiogenesis, a critical step in the growth and metastasis of cancer. Curcumin shows strong activity in multidrug- resistant breast cancers. Curcumin is more effective in radiotherapy-resistant prostate cancer. It prevent growth and spread of different cancers like oesophagus, lung, breast, liver, prostate, colon, skin, head and neck. Curcumin is useful in advanced stages of cancer. Curcumin exhibit chemotherapy effect against N-nitrosodiethylamine/ Phenobarbital induced – hepatocarcinogenesis in wistar stain male albino rats. C.longa rhizomes are also useful in intravesical tumour, hepatocellular carcinoma, stomach paplilloma, fibrosarcoma, solid tumors and oesophageal carcinogenesis. C. Longa possess antimutagenic, radioprotective, immunostimulant, carminative, blood purifier, anti-inflammatory, alterative, antiperiodic, tonic and hepatoprotective properties [1,3,17,29].

- **Amla:- (Indian Gooseberry)**


Fig. Amla

It consist of dried, as well as fresh fruits of the plant Emblica officinalis Gaerth./ phyllanthus emblica Linn. Family : **Euphorbiaceae**. Ellagic acid, gallic acid, Kaempferol, flavonoids,glycosides quercetin, emblicanin and proanthocyanidins are the chemical constituents of fruit of E. officinails.Tannins and flavonoids of E. Officinalis shows antioxidant, powerful immunomadulatory and anticancer activities. Ellagic acid is effective antioxidant and the ability to prevent mutations in genes. Ellagic acid also useful to repairs chromosomal abnormalities. Tannis i.e. Emblicanins A & B have strong antioxidant and anticancer properties Quercetin shows hepatoprotective effects. E officinalis is a good rejuvenator and antioxidant herb. it is the main Source of vitamin C., lipid, emblical, micic acid amino acids, colloidal complexes, phyllembic acid and minerals E. officinails prevent growth and spread of different cancer like breast, stomach, live, pancreas, uterus and malignant ascites. It decrease the side effects of radiotherapy and chemotherapy fruits of amla are acrid, aperient, colling, astringent, diuretic, refrigerant and laxative. Dried fruits of amla helpful in cough, Diarrhoea, jaundice, anaemia inflammation, haemorrhaage and dyspepsia. E.officinalis seeds are effective in biliousness, bronchitis and asthma. Amla is contain high amount of vitamin C. so it is used in the treatment of human scurvy. Fruit of E. officinails contain phyllembin & tannin; bark and leaves contain fixed oil & essential oil; seeds contain phosphatides and bark contain leucodelphinidin. Amla increases apoptosis in various tumours. Its extract decrease the ascites and solid tumours occurred due to dalton's lymphoma ascites cells in Mice [3,23].

- **Liquorice : (Mulathi)**


Fig. Liquorice

It consist of peeled an unpeeled roots, stolons, stems of glycyrrhiza glabra linn. Family: - **Leguminosae**. flavonoids (e.g.flavonols, flavones, isoflavones, licochalcones, chalcones and bihydrochalcones) isolated from rhizome root or whole plant of glabra shows strong anticancer, antiulcer, antimutagenic, antioxidant, anti-HIV and hrpatoprotevtive properties. Licochalcone- A specially use in the androgen- refractory prostate cancer. Licoagrochalcone shows strong anticancer activity against cancers of liver, colon, lung, breast and kidney and leukemia. Glycyrrhizin and glabranin are triteroenoid saponis obtain from G. glabra & prevent growth and spread of fibrosarcomas and lung cancer. Glycerrhizic acid obtain from G. glabra use against aflatoxins (powerful fungal carcinogens of the liver). Liquorice also contain glycerrhetinic acid, chalcone glycosides, coumarin, triterpene, sterol, eugenol, indole and liquiritoside. Liquorice shows protectine effect against colon cancer and oestrogen- positive breast cancer.Rhizomes and roots of G.galbra are use as tonic, demulcent, expeetorant laxative & emolient and used in coughs, sore throat, cattharal affections, scorpionsting and in genito-urirary diseases. Licorice extract schows antitumor and cyclophosphamide. From three thousand year ago licorice is used in treatment of cancer hepatitis and some other diseases [8,10,30].

- **Noni :- (Bartundi)**

Fig. Noni

It consist of whole plant of morinda citrifollia Linn. Family : Rubiaceae. M. Citrifollia contain 23 different phytochemicals, like vitamin. & minerals. Heartwood of M. Citrifollia contain anthraquinones as active constituents i.e. rubiadin- methyl ether, alizarin, damnacanthal, anthragallol-2, morindone and 3- dimethyl ether. Fruit of M.citrifollia contain damnacanthol, NB10 & NB11. Shows strong anticancer activity against lung cancers and sarcomas. M. Citrifollia contain 23 different phytochemicals, like vitamin. & minerals. Heartwood of M. Citrifollia contain anthraquinones as active constituents i.e. rubiadin- methyl ether, alizarin, damnacanthal, anthragallolioxidant immunaenhancing and hepatoprotective actions. The ethanolic extract of flowers of M. Citrifolia contain acetin 7-0-(-D (+)- glucopyransoide ; 5,7-dimethylapigenin -4, -o-(-D(+) galactopyranoside and new anthraquinone glycoside. Noni fruit extract enhance the host immune system and act indirectly on cancer cells. The friut juice of M. Citrifolia has antitumour activity against intraperitoneally implanted Lewis lung carcinoma in syngenic mice. 6-D-glucopyranone pentacetate it is a polysaccharide compound obtain from Noni, which stimulates the immune system to produce chemicals that increases the killing power of the white blood cells against cancer. Noni contain proxeronine which as an immunost imulant and prevent the growth of cancers and stimulate cellular functions and increases tissue regeneration [1,18,19].

- **Tulsi :- (Holy basil)**

Fig. Tulsi

It consists of the fresh and dried leaves of ocimum sanctum, Family:- Labiatae. Leaves of O. Sanctum contain volatile oils (i.e. eugenol & methyl eugenol), oleanic acid , linolenic acid, rosmarinic acid and flavonoids (e.g. Vicenin, cirsimaritin, isothymonin, isothymusin, cirsilineol,orientin, cirsimaritin and apigenin). The leaf of O. Sanctum contain ursolic acid, luteolin, lutolin7-O-glucuronide, apigenin, apigenin7-O-glucuronide, orientin and molludistin. Sesquiterpenes and Monoterpenes i.e. bornyl acetate, neral, alpha and beta-pinenes, Beta- elemene, camphene, campesterol, stigmasterol, cholesterol and beta-sitosterol.Vicenin, orientin and eugenol prevent growth and spread of various cancers like liver cancer, breast cancer and sarcomas, specially fibrosarcoma by blocking supply of oxygen and nutrients to cancer cells and killing them by starving. O. Sanctum contain polysaccharide shows antioxidant and radioprotective activity. O. Sanctum has antitumour, Immunomodulatory properties, and decrease side effects of radiotherapy and chemotherapy. Alcoholic extract of O. Sanctum leaves shows a modulatory effect on carcinogen metabolizing enzymes like cytochrome P450, Cytochrome b5, aryl hydrocarbon hydroxylase and glutathione S-transferase, (GST), these are essential in detoxification of carcinogen and mutagens. The alcoholic extract of O. Sanctum leaves shows inhibitory effect on chemically induced skin papillomas in mice. O. Sanctum shows anticancer activity against swiss albino mice bearing Enrlich ascites Carcinoma and sarcoma 180 tumours. O. Sanctum herb is also used as antibacterial, antifungal, antimalarial, antiviral, antiprotozoal, antidiarrhoeal, anthelmentic, analgesic, antipyretic, anti-inflammatory, antiallergic, antihypertensive, cardioprotective, CNS depressant, antidiabetic, antithyroidic, memory enhancer, chemoprotective, antifertility, radioprotective, aromatic, carminative, diuretic, stomachic, demulcent, expectorant, alexiteric, vermifuge and febrifuge. Tulsi is a home remedy use to treat cold, headache, cough, flue, fever, sore throat, insomnia[3,8,20].

- **Ashwagandha:- (Asgandh)**

Fig. Ashwagandha

It consists of dried root of withania somnifera Dunal, Family:- **solanaceae.** The roots of W. Somnifera contains a withanolides (steroidal lactones with ergostane skeleton) and alkaloids. They include withaferin A, Withanone and Withasonidienone. W.somnifera contain two main withanolides i.e. withaferin A and withanolide D, which are responsible for pharmacological activity. Apart from these, withaniol, starch, resins, saponins, glycine, glutamic acid, acylsteryl glucosides, fixed oil, ducitol, hantreacotane, proteins, anthraquinones, amino acids (e.g. glycine , alanine, tyrosine, aspartic acid and cystine.), and high amount of iron are also obtain from the roots of W. Somnifera. Withaferin A and withanolide D possess anticancer, antioxidant and immunoenhancing properties, and act against various cancers. Withanolide (e.g. withaferin A, physagulin D, sitoindoside IX,viscosalactone B and withanoside IV) prevent growth and spread of different types of Cancers like cancers of breast, cervix, prostate, larynx, colon, nasopharynx, malignant ascites and sarcoma by inducing apoptosis. Withaferin A is useful in both androgen- refractory and androgen-responsive prostate cancer. Withaferin A and Sitoindosides VII-X possess strong antioxidant, Immunomodulatory, anti-aging and antistress properties. Withanolide D prevent the metastatic colony formation in malignant lung melanoma. W. Somnifera decrease the cancer cell proliferation and induce the overall survival time. It promotes the effectiveness of radiation therapy, and decrease the side effects of radiotherapy and chemotherapy. W. Somnifera is novel therapy for cancer. Roots of W. Somnifera shows haemopoietic, anticonvulsant, neuroprotective, hypoglycemic and hypolipidaemic activities[1,3,8,21].

- **Ginger:- (Adrak)**

It consists of dried rhizome of zingiber officinale Rosc. Family:- Zingiberaceae Z. Officinale rhizome contains Gingerols, that prevent growth and spread of cancers such as colon, cervix, rectum, ovaray, liver, oral cavity, urinary bladder and leukaemia and neuroblastoma. 6-Shogaol, isolated from Z. officinale prevent the growth and spread of various cancers by blocking formation of new blood vessels. It decreases the side effects of chemotherapy and radiotherapy. It is useful in chemotherapy- resistance ovarian cancer. It shows antimutagenic, antiinflammatory and antioxidant properties[3,22].

Fig. Ginger

- **Conclusion**:

Medicinal plants have a valuable contribution in good health of human beings. Phytoconstituents present in plant and plant extracts responsible for anticancer activity. Herbal medicine can be most effective in cancer diseases. This review give some of the plants showing anticancer activity for various types of cancers. This review can help to others to analyze plants for further study and its use in other various disease and toxicity studies.

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