

Review Article



Plants Exhibiting Potential for Cancer Treatment

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ABSTRACT

Cancer is the second leading cause of death worldwide. World Health Organization estimates that 80% of the world's population still rely mainly on traditional medicines for their basic health care. During the last decades of the 20th century, medical researchers have developed new methods for cancer treatment by combining surgery with chemotherapy, radiations and various phytochemicals obtained from different plant species. It is important to note that chemotherapy not only kills the cancer cells but it also has some side effects on normal cells too. Medicines obtained from plants have less or no side-effects. Present investigation is mainly concerned with the documentation of anti-cancer plant species around the globe. This database includes 576 plants describing their name, plant part used, active principle, families and various cell lines used in different studies. These plants are used directly or their extracts made in different solvents or only active components are isolated from the plant and used against cancer. Different plant parts like seeds, roots, fruit, flower, bud, stem, leaves and sometimes the whole plant have been used in cancer treatment.

Keywords: Plants, cancer, active principle, cell lines.

INTRODUCTION

Cancer is one of the most dreaded diseases of the 20th century, continuously spreading further with increasing incidence in the 21st century. It's proving to be a leading cause of death (Lai et al. 2010b)¹. Hippocrates is believed to be the originator of the word cancer. It is thought that the shape of tumors reminded him of crabs and he used the word carinos, carcinoma and cancer, which refer to crabs in Greek, to describe the tumor (Cooper and Hausman, 2007)².

There are millions of plants present in the world. Every plant has its own importance. They play an indispensably important role in our lives. All the basic necessities like food, shelter and clothing are fulfilled by plants. Hippocrates, the father of Western medicine, advised his followers to "let food be your medicine and medicine your food".

No doubt, there are some plants which are highly poisonous and their direct contact or intake could be quite dangerous. Sometimes this apparent toxicity of the plant, or one of its parts, is used effectively for treating diseases. Botanists, plant researchers and traditional health care practitioners have identified and utilized large number of the plant species for the treatment of many diseases.

It is not always necessary that the whole plant should possess medicinal properties. Sometimes only a single part is of utmost importance for a particular disease. The extraction of medicinally important chemicals is a tedious process. Different extracts are effective on different cell lines. Many scientists have utilised different methods for extraction of phytochemicals.

These plants can be used in treating life threatening diseases like cancer. *Abrus precatorius*, *Eugenia jambos*, *Juglans regia*, *Azadirachta indica*, *Brassica oleracea*, *Cinnamomum zeylanicum*, *Curcuma longa*, *Piper longum*, *Plantago major*, *Ginkgo biloba*, *Podophyllum emodii*, *Saussurea lappa*, *Solanum nigrum*, *Caesalpinia bonduc* and *Terminalia catappa* are well-known anti-cancer medicinal plants (Kathireshan et al. 2006)¹. Among spices, *Zingiber officinale*, *Curcuma officinalis*, *Allium sativum*, *Murraya koenigii* and *Cinnamomum zeylanicum* are known to be anticancerous (Shukla and Singh, 2007)². *Curcuma officinalis* (Haldi) is a common spice which inhibits cell signalling pathways at multiple levels. It also induces cell apoptosis (Sharma et al. 2005)³. *Allium sativum* contains allicin which is an anticanceric compound.

Allicin is an antioxidant and inhibits the activation of procarcinogens (Ejaz et al. 2003)⁴. *Murraya koenigii* (Kadi patta) is one of the important spices, which impart flavour to food items and is used in treating lung cancer and leukemia (Muthumani 2009)⁵. *Rheum emodii* is a very important medicinal plant that inhibits angiogenesis (Rajkumar et al. 2010)⁶. *Camellia sinensis* contains catechins and causes growth suppression and cell apoptosis (Ravindranath et al. 2006)⁷.

Plant derived chemicals are going to be promising. There are hundred of papers written over cancer and role of plants in its treatment. But still there is a lot, which is to be explored. Keeping in view the importance of plant species for the treatment of cancer, present study was planned to know about the medicinal plants and their use in cancer treatment. The available literature pertaining to the present study is reviewed as follows:



Plant Species	Family	Active Principle/Extract	PPU	Cell-lines Used	Ref.
<i>Abrus precatorius</i> L.	Fabaceae	N, N-dimethyltryptophan methocation/picatiorine/ Abrine/Hypaphorine/Choline/Trigonelline	L, R, S	A-549Sarcoma/ Mouse Fibrosarcoma/ Yoshida Ascites	⁸
<i>Acacia catechu</i> (L.) Willd.	Fabaceae	Tannins/flavanols/catechin/ epicatechin	B, St.	Anti-cancer	⁹
<i>Acacia nilotica</i> L.	Fabaceae	Plant extract	F, L	Skin papillomagenesis in male Swiss albino mice	¹⁰
<i>Acacia pennatula</i> L.	Fabaceae	Crude extract	WP	KB/HCT-15 COLADCAR / UIISO- SQC-1	¹¹
<i>Acacia victoriae</i> Bent	Fabaceae	Crude extract	P, S	Jurkat cells	¹²
<i>Acalypha indica</i> L.	Euphorbiaceae	Flavonoids/tannins	ND	Anti-cancer	¹³
<i>Acalypha siamensis</i> Oliv. ex Gage	Euphorbiaceae	Tetraterpene/ acalyphaser A	L	P388 murine leukemia cells	¹⁴
<i>Acalypha wilkesiana</i> Muell Arg	Euphorbiaceae	Tannins/ Flavonoid	S	Anti-cancer	¹⁵
<i>Acanthospermum hispidum</i> DC.	Asteraceae	Guaianolides/cis, cisgermacranolides/ melampolides	L	Anti-cancer	¹⁶
<i>Acanthus ilicifolius</i> L.	Acanthaceae	Ethyl acetate extract of plant parts	L, R, Fr.	Hela and KB cell lines	¹⁷
<i>Achyranthes aspera</i> var. <i>australis</i> (R.Br.) Domin.	Amaranthaceae	Methanol extract	L	MiaPaCa-2/Panc 10.05/ HT29/ SKBR/PC-3/ A-549	¹⁸
<i>Achillea millefolium</i> Ledeb.	Asteraceae	Apigenin/luteolin/ centaureidin/casticin/ artemetin/e sesquiterpenoids	AP	HeLa and MCF-7 cell	¹⁹
<i>Acronychia pedunculata</i> (L.) Miq	Rutaceae	1-[2,4-Dihydroxy-6-methoxy-3,5-bis(3-methylbut-2-en-1-yl)phenyl]ethanone/ acrovestenol	Fr., L, R, R, St.	KB	²⁰
<i>Acronychia porteri</i> Hook. F. W.	Rutaceae	Flavanols	WP	(KB)	²¹
<i>Actaea podocarpa</i> L.	Ranunculaceae	Cycloartane-type triterpene arabinosides, podocarpasides H/I/J	R	(Vero) /(LLC-PK1) (SK-MEL, KB, BT-549, and SK-OV-3)	²²
<i>Adhatoda vasica</i> Nees.	Acanthaceae	Bromhexine/Vasicine/ Peganine/glucosyloxychalcone/vasicol/vasicinone/ vasicinol/deoxyvasicinone	L, R, St.	Anti-cancer	²³
<i>Aegle marmelos</i> (L.) Correa	Rutaceae	Methanol extract	Fr.	Anti-cancer	²⁴
<i>Aglaia roxburghiana</i> (W.& A.) Miq. var. <i>beddomei</i>	Meliaceae	Triterpenes roxburghadiol A / B	Fr. AP	Anti-cancer	²⁵
<i>Agrimonia pilosa</i> Ledeb.	Rosaceae	Agrimonyin	ND	(PBMC) (PEC)	²⁶
<i>Ailanthus altissima</i> Mill.	Simaroubaceae	Alkaloids	S	Anti-cancer	²⁷
<i>Ailanthus excelsa</i> Roxb.	Simaroubaceae	Ailanthione/glaucarubinone / and a mixture of glaucarubol 15-isovalerate/ 13,18-dehydroglaucarubol 15 isovalerate	R Ba.	Antitumor/ cytotoxic	²⁸
<i>Ajuga bracteosa</i> Wall.	Labiateae	Bractin A/bractin/B bractic acid	WP	Anti-cancer	²⁹
<i>Ajuga decumbens</i> L.	Labiateae	12-O-tetradecanoylphorbol-13-acetate (TPA)/cyasterone /8-acetylharpagide	F	Mouse pulmonary tumor	³⁰
<i>Albizia lucidior</i> (Steud.) I.C.Nielsen	Mimosaceae	Alkaloidal and phthalate	ND	K562 cells	³¹
<i>Albizia lebbeck</i> (L.)Benth	Mimosaceae	Tannins/Pseudotannins/Echinocystic/Friedelin/y_s itosterol	S Ba.	Sarcoma 180 in mice	³²
<i>Alstonia scholaris</i> R.Br.	Apocynaceae	Echitamine/alstonine/ pleiocarpamine/ O-methylmacrolstonine/ macrastonine/lupeol	ND	HeLa/ HepG2/ HL60/ KB/ MCF-7 cells/ 23 Vero cells/ fibrosarcoma	³³
<i>Albizia julibrissin</i> Durazz.	Mimosaceae	Julibrosides I-III/α-L-arabinofuranosyl-(1→4)-[β-d-glucopyranosyl-(1→3)]-α-L-rhamnopyranosyl-(1→2)-β-d-glucopyranosyl ester unit/monoterpene-quinovopyranosyl	ND	Cytotoxic	³⁴
<i>Allamanda cathartica</i> Garden.	Apocynaceae	Allamandin/Allamandicin inactive/Plumericin/ Isoplumericin/Penstemicide	WP	P-388 leukemia	³⁵
<i>Allium sativum</i> L.	Liliaceae	Allicin	Bu.	Human mammary (MCF-7)/ Endometrial/ Colon(HT-29)cells	³⁶
<i>Alpinia pricei</i> Hayata.	Zingiberaceae	Caffeic acid/ apigenin/curcumin/ pinocembrin	L, R	CH27/HL-60/ A549 cell	³⁷
<i>Amaranthus gangeticus</i> L.	Amaranthacea	Aqueous extract	ND	(HepG2) (MCF-7)/ (Caco-2)	³⁸
<i>Amoora dasyclada</i> Roxb.	Meliaceae	Triterpenoids	T	AGZY 83-a and SMMC-7721	³⁹



<i>Amoora ouangliensis</i> (Lev.) C.Y. Wu	Meliaceae	Diterpenoids	Ba.	AGZY 83-a and SMMC-7721	40
<i>Amoora rohituka</i> Wight & Arn	Meliaceae	Triterane sesquiterpenes	Ba.	P388	41
<i>Amorphophallus paeoniifolius</i> (Dennst.)	Araceae	Petroleum ether/ ethanolic extract	Tu.	Hep-2 cells(human larynx epithelial carcinoma cell line Hep-2 cells(human larynx epithelial carcinoma cell line	42
<i>Andrographis paniculata</i> (Burm.f.) Wall. ex Nees	Acanthaceae	Andrographolide/ 14-deoxyandrographolide/ 14-deoxy-11,12-didehydroandrographolide	WP	HT-29	43
<i>Angelica decursiva</i> (Miquel) Franchet & Savatier	Apiaceae	Ethanolic extract	R	FOB / Saos2	44
<i>Angelica gigas</i> Nakai	Apiaceae	Decursin/ decursinol angelate (DA)	ND	(LLC)/prostate cancer	45
<i>Angelica keiskei</i> Koidz.	Apiaceae	MTT assay	ND	AGS/HT-29	46
<i>Annona dioica</i> L.	Annonaceae	Flavonoids/ kaempferol	L	Ehrlich carcinoma cells	47
<i>Annona glabra</i> L.	Annonaceae	Cunabic acid/ ent-kauran-19-al-17-oic acid	ND	Human Liver Cancer (HLC) cell line SMMC-7721	48
<i>Annona reticulata</i> L.	Annonaceae	Methanol extract	L	Caco-2 /Hep G2 HEK	49
<i>Annona squamosa</i> L.	Annonaceae	1-(4- D-glucopyranosyloxyphenyl)-2-(-D-glucopyranosyloxy)-ethane (11) (+)-O-methylarmepavine/ N-methylcorydaldine/ isocorydine	Fr.	HL-60 cells	50
<i>Antiaris africana</i> Engler	Moraceae	3β-acetoxy-1β,11α-dihydroxy-olean-12-ene/ursolic acid /oleanolic acid/strophanthido/ periplogenin/convallatoxin/strophanthidinic acid /methyl strophanthinate / 3,3'-dimethoxy-4'-O-β-D-xylopyranosylellagic acid	S Ba.	DU-145/ Hep G2 cells/	51
<i>Antiaris toxicaria</i> Lesch.	Moraceae	Cardiac glycosides Toxicarioside D	St.	NIH-H460/A549/Calu-6 I LNCaP/ MCF-7 / SW480 / HeLa	52
<i>Aphanamixis polystachya</i> (wall)Parke	Meliaceae	Ethanolic extract/ aphanamixol/aphanamixinin/meliacin	L Ba.	Ehrlich ascites carcinoma in swiss albino mice/Friend virus leukemia in mice	53
<i>Arachis hypogaea</i> L.	Fabaceae	Resveratrol (trans-3,5,4'-trihydroxystilbene)	S	Breast cancer/ prostate cancer/ neuroblastoma	54
<i>Arisaema jacquemontii</i> Blume.	Araceae	A. jacquemontii lectin (AJL)	Tu.	MCF-7 /SKOV-3 /SiHa PC-3 /SNB-78 /IMR-32 /Colo-205 /HT-29 /HCT-15 /SW-620 /HEP-2 /HOP-62 /A-549	55
<i>Arisaema tortuosum</i> Schott	Araceae	Asialofetuin	Tu.	HT-29/ SiHa OVCAR-5 SNB 78 and PC-3	56
<i>Arnebia euchroma</i> (Royle Johnst)	Boraginaceae	Naphthoquinone pigment-LIII	ND	Stomach cancer cell line/oesophagus cancer cell line.	57
<i>Aronia melanocarpa</i> (L.) Pers.	Rosaceae	Polyphenol-rich extract	Be.	Blood platelets / Breast cancer	58
<i>Artemisia annua</i> L.	Asteraceae	Flavonoids/coumarins/ steroids/phenolics/ purines / lipids/aliphatic compounds / monoterpenoids/ Sesquiterpenoids/artemisinin/ dihydroartemisinic acid/ artemisinic acid/ arteannuin B	S	Anti-cancer	59
<i>Artemisia anomala</i> S. Moore	Asteraceae	Artanomalide A/B/C/D	AP	HCT-8/Bel-7402/BGC 823/A 549/A 2780	60
<i>Asclepias curassavica</i> L.	Apocynaceae	Cardenolides/ nor-cardenolides/cardenolide genins/pregnane/ androstane/ triterpene/3,4-seco-urs-20(30)-en-3-oic acid	R AP	Human lung carcinoma A549/ MCF-7 / MDA-MB-231/ hepatoma HepG2	61
<i>Asparagus racemos Willd.</i>	Asparagaceae	Saponins(A4)(A5)(A6)(A7)Which have Sarsasapogenin/Glucose/Rhamnose	R L	Human epidermal carcinoma of nasopharynx tissues	62
<i>Astragalus membranaceus</i> L.	Fabaceae	Astragalus saponins (AST)	WP	Human colon cancer cells and tumor xenograft	63
<i>Astrodaucus orientalis</i> L.	Apiaceae	2,4 dihydroxyphenyl(E)-6-octadecenoate, Alpha sabinene, Alpha pinene, Alpha thujene,Methanolic extract of root	AP F, R	Anti-cancer	64
<i>Avicennia germinans</i> L.	Avicenniaceae	3-chlorodeoxylapachol/ naphthoquinone	L, T	KB /(MCF-7) (Lu1)/(LNCaP)	65
<i>Bacopa monnieri</i> L.	Scrophulariaceae	Bacobitacin A /Bacobitacin B /Bacobitacin C /Bacobitacin D	AP	Human colon/ breast/lung /central nervous system cancer cell lines	66
<i>Bauhinia variegata</i> L.	Fabaceae	Ethanolic extract	ND	Ehrlich Ascites Carcinoma in mice	67
<i>Berberis aristata</i> DC.	Berberidaceae	Methanolic extract		(HT29)/HT29 cancer cell line	68
<i>Beta vulgaris</i> L.subsp cycla	Chenopodiaceae	Vitexin-2''O-rhamnoside/isorhamnetin 3-	L	MCF-7	69



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<i>Betula platyphylla</i> L. var. <i>japonica</i>	Betulaceae	1,1-diphenyl-2 picrylhydrazyl	Ba.	(V79-4)/ (HL-60) cells	70
<i>Bidens pilosa</i> L.	Asteraceae	Methanolic extract	WP	HeLa cells	71
<i>Bolbostemma paniculatum</i> (Maxim.) Franquet	Cucurbitaceae	Tubeimoside I	ND	Rat plasma	72
<i>Boswellia serrata</i> Roxb.	Burseraceae	Alcoholic extract	R	Human epidermal carcinoma of nasopharynx tissues	73
<i>Brassica pekinensis</i> Rupr.	Brassicaceae	Sulforaphane/erucin	S	Anti-cancer	74
<i>Brassica chinensis</i> L.	Brassicaceae	Sulforaphane/erucin	S	Anti-cancer	75
<i>Brassica oleracea</i> L.	Brassicaceae	Sulforaphane/erucin	S	Anti-cancer	76
<i>Bridelia tulasneana</i> Baill	Euphorbiaceae	C22H22O7 Deoxypodophyllotoxin	T	A2780	77
<i>Bridelia ferruginea</i> Benth	Euphorbiaceae	chalcone 6, 4l dihydroxy 3l propen chalcones/4l propenoxy 7-hydroxy anthocyanidines	Ba. L	Anti-cancer/antitumoric	78
<i>Bursera fagaroides</i> von Jacquin ex Linnaeus	Burseraceae	Hydroalcoholic extract	ND	BALB/C murine L 5178 Y lymphoma	79
<i>Brucea antidyserterica</i> Mill.	Simaroubaceae	Bruceantinoside-A and -B /Bruceanol-A/bruceantin	WP	Antitumor/ antileukemic	80
<i>Brucea javanica</i> (L.) Merr.	Simaroubaceae	Methanolic extract	Fr.	Anti-cancer	81
<i>Bruguiera gymnorhiza</i> (L.) Lam.	Rhizophoraceae	Bruguierulfuro/brugierol/ isobrugierol/trans-3,30-dihydroxy1,5,10,50-tetrathiacyclodecane/cis-3,30-dihydroxy-1,5,10,50-tetrathiacyclodecane/gymnorrhizol/ neogymnorrhizol	F	HepG2	82
<i>Caesalpinia ferrea</i> Mart. ex Tul.	Fabaceae	Pauferrol A	St.	HL60 cells	83
<i>Calotropis gigantea</i> R.Br.	Apocynaceae	Alcoholic/hydro-alcoholic(1:1)/aqueous;highest effect in alcoholic	R	Colo 320	84
<i>Cajanus cajan</i> (L.) Millsp.	Fabaceae	Methylester/amyrin/sitosterol/pinostrobin/longistylins A/longistylinsC/hydroxyl stilbenes longistylins A/C	L	Anti-cancer	85
<i>Callicarpa americana</i> L.	Labiateae	Calliterpenone/euscaphic acid/salvigenin (6,7-dimethoxy-4'-hydroxyflavone) /genkwanin	Fr./L T	(LNCaP)/ (Lu1)/ (MCF-7)	86
<i>Calophyllum brasiliense</i> Cambess	Clusiaceae	GUT-70(tricyclic coumarin, 5-methoxy-2,2-dimethyl-6-(2-methyl-1-oxo-2-butenyl) -10-propyl-2H,8H-benzo[1,2-b;3,4-b']dipyran-8-one (C(23)H(26)O(5))	St. Ba.	Leukemic cell lines	87
<i>Canavalia gladiata</i> (Jacq.) DC.	Fabaceae	Canavanine [2-amino-4-(guanidinoxy) butyric acid]	Bea.	Pancreatic cells	88
<i>Calycopteris floribunda</i> Lam.	Combretaceae	Diethyl ether-methanol/ aqueous 90% methanol extract/ petroleum ether-butanol extract	L	Anti-cancer	89
<i>Camellia sinensis</i> (L.) Kuntze	Theaceae	Epicatechin (EC)/epigallocatechin (EGC)/EC 3-gallate (ECG)/EGC 3-gallate (EGCG)/	L	(HH870)/ (DU145) / (HH450) / (HH639)	90
<i>Camptotheca acuminata</i> Decne	Cornaceae	Camptothecin	WP	Anti-cancer	91
<i>Cannabis sativa</i> L.	Cannabinaceae	Cannabinoids	WP	Anti-cancer	92
<i>Capparis sikkimensis</i> Jacobs	Capparaceae	(2H-1,4-benzoxazin-3(4H)-one, 6-methoxy-2-methyl 4-carbaldehyde)	R	(1A9)/ (1A9)/ (HCT-8)/ (MCF-7)/ (KB)/ (KB-VIN)	93
<i>Carica papaya</i> L.(CP)	Caricaceae	Aqueous extract	L	Jurkat, Molt-4, CCRF-CEM and HPBALL/(Ramos and Raji)/(K562)/(Hela)/e (H9)/(ARH77)	94
<i>Carpesium rosulatum</i> Miq	Asteraceae	Sesquiterpene lactone	ND	(A549, SK-OV-3, SK-MEL-2, XF498, HCT15)	95
<i>Casearia nigrescens</i> Tul.	Salicaceae	Casearulin A/C	ND	A2780	96
<i>Casearia sylvestris</i> Sw.	Salicaceae	Casearvestrin A/ Casearvestrin B/ Casearvestrin C	L, T	(LX-1)/ (HCT116)/(A2780) KB	97
<i>Cassia auriculata</i> (L.) Roxb	Fabacea	Aqueous extract	L	MCF-7 and Hep-2	98
<i>Cassia petersiana</i> Bolle	Fabaceae	Pepetersinone/Petersinone /Petersinone /Petersinone /sistosterol-3- -d-glycoside	L	Hepatocellular carcinoma	99
<i>Cassia italica</i> Miller.	Fabaceae	Methanol extract	ND	Vero and Hep-2	100
<i>Cassia tora</i> L.	Fabaceae	Methanol extract	L	HeLa	101
<i>Catharanthus roseus</i> (L.) G.Don.	Apocynaceae	Vinblastine/ vincristine	F	Anti-cancer	102



<i>Cedrus deodara</i> Loud.	Pinaceae	Quercetin/ 8-C-methyl Quercetin	W, Ba.	Human epidermal carcinoma of nasopharynx	103
<i>Celastrus orbiculatus</i> Thunb.	Celastraceae	Sesquiterpene	R	KB-V1/ MCF7/ADR cells	104
<i>Celtis philippinensis</i> (Planch.)	Ulmaceae	Triterpene	T	Several cell lines	105
<i>Centaurea ainebensis</i> Boiss.	Asteraceae	Sesquiterpene lactone/ Salograviolide A	ND	(SCC) cell lines	106
<i>Centaurea gigantea</i> Schultz. Bip. ex Boiss.	Asteraceae	Chlorogenic acid/2"- (4"-hydroxybenzoyl)-isoorientin, orientin/isoorientin/isoquercetin/cirsiliol	AP	Colon cancer cell lines	107
<i>Centaurea montana</i> L.	Asteraceae	Flavanone/montanoside epoxylignans/berchemol / berchemol/ Indole alkaloids	S	CaCo2 colon cancer cells	108
<i>Centaurea urvillei</i> Stepposa Wagenitz	Asteraceae	Hispidulin/apigenin/cirsiliol/nepetin/cirsimarin/ salvigenin	L	Anti-tumor	109
<i>Centaurea schischkinii</i> Tzvelev	Asteraceae	Lignans/ arctiin/ matairesinoside/ mataresinol / arctigenin/ flavonoids, astragalalin/ afzelin/ apigenin	S	CaCo-2 colon cancer cell lines	110
<i>Centella asiatica</i> L.	Apiaceae	Methanol extract	ND	Ehrlich Ascites tumor cells	111
<i>Cephalotaxus harringtonia</i>	Cephalotaxaceae	Cephalotaxine/ homoharringtonine	ND	MRP1 (HL60/AR)/ breast cancer cell line	112
<i>Cerbera manghas</i> L.	Apocynaceae	2 -epi-2 -O-Acetylthevetin B	S	HepG2 cells	113
<i>Cerbera odollam</i> Gaertner.	Apocynaceae	Organic extracts	S	(MCF7 and T47D)/ (SKOV3 , Caov 3)/(Vero) cells	114
<i>Chassalia kolly</i> (Schumach.) Hepper	Rubiaceae	Anthraquinones/tannins/ cardiac glycosides/ alkaloids/saponin glycosides/steroiodal nucleus	WP	Cytotoxic	115
<i>Cheilanthes dalhousiae</i> Hook	Pteridaceae	Flavone-5-O-Glycosides	L	Anticancer	116
<i>Chlorophytum orchidastrum</i> Lindl	Liliaceae	Orchidastroides A/B/C/D/E/F/ galactopyranoside (ChloromalosideD)	R	Colon cancer cell lines HCT 116/ HCT -29	117
<i>Chukrasia tabularis</i> A. Juss.	Meliaceae	Gallic acid/epicatechin/ 7-hydroxycoumarin/rutin	L	Anti-cancer	118
<i>Cirsium japonicum</i> var <i>ussuriense</i> (Regel) Kitam	Asteraceae	Methanol extract/ water extract	L	Stomach carcinoma cells	119
<i>Clausena lansium</i> (Lour.)	Rutaceae	Ethyl-acetate	Pee.	(SGC-7901) (HepG-2) /(A-549)	120
<i>Cleome gynandra</i> L.	Cleomaceae	Methanol extract	ND	Ehrlich Ascites Carcinoma (EAC) cell line	121
<i>Clerodendrum infortunatum</i> L.	Verbenaceae	Petroleum ether/ ethanol extracts	L	Anti-cancer	122
<i>Cocos nucifera</i> L.	Arecaceae	Amino acids/lipids vitamins/minerals/ phytohormones	Fr.	HeLa and B16F-10 cells / (HepG2) cells	123
<i>Cratoxylum formosum</i> (Jack) Dyer	Hypericaceae	Xanthones (xanthone A-C (1-3)/ macluraxanthone Gerontoxanthone 3-geranyloxy-6-methyl-1,8-dihydroxyanthraquinone/ madagascin	R	MCF-7/HeLa/ HT-29/ KB cell lines	124
<i>Croton argyrratus</i> Blume	Euphorbiaceae	Styryldehydropyrone/ goniothalamin / clerodane-type diterpene/ (-)-junceic acid.	L St.	Various canceric cell line	125
<i>Croton bonplandianum</i> Baill.	Euphorbiaceae	Methanol extract	T	Anti-cancer	126
<i>Croton eluteria</i> Bennett	Euphorbiaceae	Prenylbisabolane/sesquiterpene/clerodanes (named eluterins A-K and cascarilladione) halimane (pseudoeluterin B)cascarillin	Ba.	Leukemia T cell/ line Jurkat	127
<i>Croton lechleri</i> Muell.Arg.	Euphorbiaceae	Proanthocyanidins/ catechin/epicatechin/ gallocatechin / epigallocatechin/ alkaloid taspine /lignan 3,4-O-dimethylcedrusin	Sap	Anti-cancer	128
<i>Croton regelianus</i> Muell. Arg.	Euphorbiaceae	P-cymene/ascaridole/ camphor and Terpinene/ ascaridole	L	HL-60 / SF-295 cell lines/HCT-8 cell lines	129
<i>Croton flavens</i> L.	Euphorbiaceae	Viridiflorene/germacrone/(E)-Beta-bisabolene/ Beta-caryophyllene Alphacadinol/Beta-elemene /alpha-humulen	L	A-549 /DLD-1	130
<i>Croton insularis</i> Baill.	Euphorbiaceae	Pimarane/Spruceanol and sonderianol	ND.	NFF /HeLa /HT 29 / MCF-7 /MM96L/K562	131
<i>Croton oblongifolius</i> Roxb.	Euphorbiaceae	Furoclerodane/croblongifolin/clerodane/crovatin/ labdane/nidorellol	St. Ba.	HEP-G2/SW620/ CHAGO/KATO3/ BT474	132
<i>Croton palanostigma</i> Mart. ex Klotzsch.	Euphorbiaceae	Taspine (3'4'-O -dimethylcedrusin)	ND	AGS (stomach)/ HT29/T84 (colon)	133
<i>Croton tonkinensis</i> Gagnep.	Euphorbiaceae	Ent-kaurene	L	Murine macrophage RAW264.7	134
<i>Curcuma longa</i> L.	Zingiberaceae	Turmerin/curcumin[1,7-bis-(4-hydroxy-3-	Rh.	Colorectal cancer	135



		[methoxyphenyl)-1,6-heptadiene-3,5-dione]			
<i>Cyathula uncinulata</i> (Schrad.) Schinz	Amaranthaceae	ND	R	Benign prostate cancer	136
<i>Cymbopogon citratus</i> (DC.) Stapf	Poaceae	Cardiac glycosides /flavonoids/ alkaloids/tannins	L	Anti-cancer	137
<i>Cymbopogon flexuosus</i>	Poaceae	Geraniol/ geranyl acetate /alpha-bisabolol/ isointermedeol	WP	KB and MCF-7/ascitic Ehrlich / Sarcoma-180 502713 (colon) / IMR-32 (neuroblastoma)	138
<i>Cynanchum auriculatum</i> Royle ex Wight.	Apocynaceae	Cudatin-2,6-dideoxy-3-O-methyl-β-D-cymaropyranoside	R	Human tumor cell line SMMC-7721	139
<i>Cynanchum paniculatum</i> Kitagawa.	Apocynaceae	Henanthroindolizidine alkaloid antofine	R	A549/ Col2	140
<i>Cynanchum taiwanianum</i> L.	Apocynaceae	ophenone	Rh.	Anti-cancer	141
<i>Cynanchum wilfordii</i> (Maxim.) Hook. f.	Apocynaceae	nane Glycoside	R	KB-V1/ MCF7/ADR cells	142
<i>Dactyloctenium aegyptium</i> (L.) P.B	Poaceae	Methanol extract	WP	HeLa/ A549/ MRC-5 cells	143
<i>Dalbergia candenatensi</i> (Dennst.) Prain.	Fabaceae	5-hydroxybowdichione /mucronulatol/ claussequinone/ formononetin/vestitol/ nystatin	H.W	P-388 lymphocytic leukemia	144
<i>Dalbergia odorifera</i> T. Chen	Fabaceae	Trihydroxyisoflavanone/ liquiritigenin/melanettin/ violanone/vistitone/ formononetin/dalbergin/ sativanone/medicarpin	H.W	Anti-cancer	145
<i>Dalea elegans</i> Hook. & Arn.	Fabaceae	2,4-dihydroxy-5-(1-dimethylallyl)-6-prenylpinocembrin (6PP)	Rs	HEp-2 cells	146
<i>Daphne mucronata</i> Royle.	Thymelaeaceae	Methanol extract	Sh.	k562	147
<i>Datura innoxia</i> P.Mill.	Solanaceae	Methanolic extract	L	(HCT 15) (Hep-2)	148
<i>Davallia solida</i> (Forst.) Sw.	Davalliaceae	4'-O-p-hydroxybenzoylmangiferin/3'-O-p-hydroxybenzoylmangiferin/6'-O-p-hydroxybenzoylmangiferin/3-O-p-hydroxybenzoylmangiferin/mangiferin/2-C-β-D-xylopyranosyl-1,3,6,7-tetrahydroxanthone/4β-carboxymethyl-()-epicatechin	Fr.	(HT-29, HL-60, SK-OV3, AGS, and A549)	149
<i>Dillenia indica</i> L.	Dilleniaceae	Betulinic acid	Fr.	Cancer cell lines	150
<i>Dioscorea collettii</i> var. <i>hypoglauc</i>	Dioscoreaceae	Furostanol/spiostanol glycoside/steroidal saponins	ND	Anti-cancer	151
<i>Dioscorea composita</i> Hemsl.	Dioscoreaceae	Furostanol/spiostanol glycoside/steroidal saponins	ND	Anti-cancer	152
<i>Dioscorea pseudojaponica</i> Yamamoto.	Dioscoreaceae	Furostanol/spiostanol glycoside/steroidal saponins	ND	Anti-cancer	153
<i>Dioscorea villosa</i> (Dios)	Dioscoreaceae	A spirostanol glycoside	ND	Anti-cancer	154
<i>Diospyros kaki</i> L.	Ebenaceae	Kakispyrone/kakisaponin A	L	Cancer cell lines	155
<i>Diospyros montana</i> Roxb.	Ebenaceae	Diospyrin	St. Ba.	Anti-tumor	156
<i>Dipsacus asper</i> Wall.	Dipsacaceae	Akebia saponin D (ASD)	R	U937	157
<i>Dracaena draco</i> L.	Dracaenaceae	Steroidal saponin	Sap	K562/SGC-7901	158
<i>Dregea volubilis</i> Benth.	Asclepiadaceae	Pregnane Glycosides/ Dregeosides/Sitosterol/ kaempferol-3-galactoside/ 2-deoxy sugar Drevogenin	J L	Sarcoma 180 in mice	159
<i>Duguetia hadrantha</i> (Diels) R.E. Fr	Annonaceae	4,5-dioxo-1-azaaporphinoids hadranthine A/ hadranthine B/imbiline-1 /sampangine / 3-methoxysampangine	ND	SK-MEL/ KB/ BT-549/ SK-OV-3/ human malignant melanoma	160
<i>Dysoxylum binectariferum</i> Hook.f	Meliaceae	Rohitukine	ND	Ovarian and breast cancer lines tested	161
<i>Eclipta alba</i> L.	Asteraceae	Steroidal Alkaloids	ND	M-109 cell line	162
<i>Eclipta prostrata</i> L.	Asteraceae	Plant extract	ND	Cancer/endothelial cell migration / anti-angiogenic activity	163
<i>Elaeodendron transvaalense</i> (Burtt Davy) R.H.Archer	Celastraceae	Taraxastanolon/-sitosterol/ 4'-O-methylepigallocatechin	St. Ba.	Breast cancer	164
<i>Eleusine indica</i> (L.) Gaertn.	Poaceae	Methanol extract	WP	HeLa/ A549/ MRC-5 cells	165
<i>Emilia sonchifolia</i> (L.) DC. ex Wt	Asteraceae	Alkaloids/ flavonoids/ terpenes	AP	(EAC) /(DLA)	166
<i>Entada africana</i> Guill and perr	Fabaceae	ND	L St.	KB/ vero	167



<i>Entada pursaetha</i> DC.	Fabaceae	Triterpenoid saponins(pursaethosides A–E (1–5))/phaseoloidin	S Ke.	HCT 116 / HT-29 human colon cancer cells	168
<i>Entada rheedii</i> Spreng.	Fabaceae	Rheediinoside A/ Rheediinoside B	S, Ke.	T98G/ A431/ PC3 B16-F1 cell lines	169
<i>Epipremnum pinnatum</i> (L.) Engl.	Araceae	Chloroform extract	ND	T-47D Molt 4 KB and SW 620	170
<i>Eugenia jambos</i> L.	Myrtaceae	1-O-galloyl castalagin/casuarinin	L	(HL-60)/(SK-HEP-1)	171
<i>Eupatorium betonicaeforme</i> (D.C.) Baker	Asteraceae	2,2-dimethyl-6-vinylchroman-4-one/ 2-senecioyl-4-vinylphenol / 6-acetyl-2,2-dimethylchroman-4-one / (4E)-8β-angeloyloxy-9β,10β-dihydroxy-1-oxogerma-4,11(13)-dien-12,6α-olide and 3β-hydroxyicosan-1,5β-olide	F R	HL-60 cells	172
<i>Euphorbia aellenii</i> Rech. f.	Euphorbiaceae	Chloroform (E2)	WP	Cytotoxic	173
<i>Euphorbia cheiradenia</i> Boiss. & Hohen.	Euphorbiaceae	MeOH extract	AP	HeLa /A549 / K562 / Jurkat	174
<i>Euphorbia ebracteolata</i> Hayata	Euphorbiaceae	Diterpenoids/yuexiandajisu D/E/F /Diterpenoids, jolkinolide B / jolkinolide	R	ANA-1/ B 16/ Jurkat tumor cells	175
<i>Euphorbia guyoniana</i> L.	Euphorbiaceae	Jatrophane diterpenes(guyonianins E and F)	ND	(HEK293) cells	176
<i>Euphorbia hirta</i> L.	Euphorbiaceae	Euphorbins A/ B/ C/ D/E/Euphorbianin/ leucocyanidol/camphol/ quercitrin and quercitol/Gallic acid/ myricitrin/	ND	Malignant melanomas/ squamous cell carcinomas	177
<i>Euphorbia helioscopia</i> L.	Euphorbiaceae	Euphornin L/ euphoscin F	ND	HL-60 cell line	178
<i>Euphorbia heterophylla</i> L.	Euphorbiaceae	Alkaloids/Tannins/ Flavonoids/Saponins	WP	EAC (Ehrlich ascites carcinoma)	179
<i>Euphorbia kansui</i> Liou	Euphorbiaceae	Kansuiphorin	R	Cytotoxic	180
<i>Euphorbia lathyris</i> L.	Euphorbiaceae	Macrocyclic Diterpenoids	S	K562/R7	181
<i>Euphoria longana</i> Lam	Euphorbiaceae	Gallic acid/corilagin (an ellagitannin)/ellagic acid	Fr.	Anti-cancer	182
<i>Euphorbia macroclada</i> Boiss	Euphorbiaceae	Dichlormethane/ethylacetate extracts	AP	MDA-MB-468	183
<i>Euphorbia nivulia</i> L.	Euphorbiaceae	Ingol diterpenes	ND	Cytotoxic	184
<i>Euphorbia nerifolia</i> L.	Euphorbiaceae	Euphol (triterpenoidal sapogenin)	L	F1 B16	185
<i>Euphorbia pekinensis</i> Rupr.	Euphorbiaceae	Cytotoxic casbane diterpene	R	NCI-H460/KB/ SGC7901 / HO-8910 cancer cells	186
<i>Euphorbia poisonii</i> Pax.	Euphorbiaceae	Tigiane diterpene, 12-deoxyphorbol 13-(9,10-methylene)undecanoate (3), five known diterpenes (1, 2, 4–6).	La.	(A-498)	187
<i>Euphorbia prolifera</i> Buch.-Ham. ex D.Don	Euphorbiaceae	Four new myrsinol diterpenes, proliferins A–D (1–4, resp.) euphorprolithrin B/euphorprolithrin D	R	A2780	188
<i>Euphorbia pulcherrima</i> Willd. ex Klotzsch	Euphorbiaceae	Cytotoxic triterpenes	L	Ehrlich ascites tumor cells	189
<i>Euphorbia schimperi</i> C. Presl	Euphorbiaceae	Triterpenoids/α-amyrin/ β -sitosterol-β-D-O-glucoside/ scopoletin/ luteolin/kampferol	AP	(U251)/ (MCF7)	190
<i>Evodia rutaecarpa</i> (Juss.)	Rutaceae	Rutaecarpine/pyridol	Fr.	Anti-cancer	191
<i>Fabiana imbricata</i>	Solanaceae	Sesquiterpene 11-hydroxy-4-amorphen-15-oic acid	AP	AGS	192
<i>Fagara heitzii</i> (Aubr. et Pel.)	Rutaceae	Amides/ heitziamide A /heitziamide B /phenylethanoids heitziehanoid A / heitziehanoid	St. Ba.	PC-3	193
<i>Fagara zanthoxyloides</i> Lam.	Rutaceae	Methanolic extract	ND	Anti-leukemic	194
<i>Fagonia cretica</i> L	Zygophyllaceae	Methanolic extract	AP	MCF-7/ MDA-MB-231	195
<i>Fagonia taekholmiana</i> Hadidi	Zygophyllaceae	Kaemferol triglycoside	AP	MCF7	196
<i>Ficus bengalensis</i> L.	Moraceae	Leucopelargonidin-3-O-α-Lrhamnoside/leuco cynidin 3-O-α-D galactosyl cellobioside/glucoside/ beta glucoside/pentatriacontan-5-one/beta 19-20 sitosterolalpha-D-glucose	Ba.	Anti-cancer	197
<i>Ficus carica</i> L.	Moraceae	Apigenin/apigenin 7-O-glucoside/kaempferol 3-O-glucoside/kaempferol 3,7-di-O-rhamnoside/ quercetin and quercetin 3-O-glucoside	L T	Anti-cancer	198
<i>Ficus hispida</i> L.	Moraceae	Ethanol water/methanol/ water/ methanol and ethyl acetate	Ba.	Anti-cancer	199
<i>Ficus indica</i> L.	Moraceae	Psoralen/β sitosterol/bergapten/taraxasterol/6-o-acyl-β-D-Sitosterol	L Fr.	Breast/prostate/T-cell leukaemia/ Burkitt B cell lymphoma	200



<i>Ficus retusa</i> L.	Moraceae	Polyphenolic compounds named retusaphenol/retusa afzelechin/ luteolin/ (+) - afzelechin/ (+) - catechin /vitexin /sitosterol acetate/amyrin acetate/ moretenone/friedelenol, -amyrin and -sitosterol	AP	(Hep-G 2)/ (HCT-116) / lymphoblasticlls	201
<i>Forsythia koreana</i> Naki	Oleaceae	Phenylethanoids, forsythiaside/ suspensaside lignans/phillyrin/pinoresinol O-p-D-glucoside phenylethanoids	Fr.	Anti-cancer	202
<i>Forsythia viridissima</i> Lindley	Oleaceae	Phenylethanoids/2/13/ lignans	Fr.	Anti-cancer	203
<i>Forsythia suspensa</i> (Thunb.) Vahl.	Oleaceae	Aqueous/alcoholic extract	Fr.	Anti-cancer	204
<i>Fragaria chiloensis</i> (L.) Mill.	Fouquieriaceae	Antioxidants(AsA-POD) /OH/antioxidant enzyme GR)	Fr.	A549	205
<i>Fritillaria thunbergii</i> Miq.	Liliaceae	Antioxidants(AsA-POD /OH/antioxidant enzyme GR)	Fr.	A549	206
<i>Garcinia densivenia</i> Engl.	Clusiaceae	Gallic acid (3,4,5-trihydroxybenzoic acid)	ND	Anti-cancer	207
<i>Garcinia bracteata</i> Y. Wu ex Y. H. Li	C.	Prenylxanthones, bractatin/isobractatin/ 1-O-methylbractatin/ 1-O-methylisobractatin/ 1-O-methyl-8-methoxy-8a-dihydrobractatin/ 1-O-methylneobractatin	L	KB cell line	208
<i>Garcinia cowa</i> Roxb.	Clusiaceae	Polyprenylated acylphloroglucinol derivative unsubstituted at C-2 and C-6, garcicowin A / garcicowins B-D	T	HT-29 / HCT116/normal colon cells (CCD-18Co)	209
<i>Garcinia gaudichaudii</i> Planch	Clusiaceae	Gaudichaudiones A - H (1,2,8 – 10 and 12)/ gaudichaudic acids A - E (3 – 6)/morellic acid (7)/forbesione	L	Several cancer cell lines	210
<i>Garcinia hanburyi</i> L.	Clusiaceae	Twelve new xanthones (1–12)	Re.	HeLa tumor cell line	211
<i>Garcinia mangostana</i> L.	Clusiaceae	Three new prenylated xanthones, mangostenones C/ D / and E/16 known xanthones 4-19	Fr.	(KB)/(BC-1) / (NCI-H187)	212
<i>Gardenia obtusifolia</i> ex Hook.f.	Rubiaceae	5,3'-dihydroxy-3,6,7,8,4'-pentamethoxyflavone	L	Prostate/colon/ kidney/lung/ head / neck/pancreas/ breast/leukemia/ myeloma cancer cell line	213
<i>Gardenia tubifera</i> ex Roxb.	Wall.	3,4-seco cycloartanes, gardenoins A-D (1-4)/ secaubryenol	AP	(BT474)/(CHAGO)/(Hep-G2)/ (KATO-3)/(SW-620)	214
<i>Gentiana lutea</i> L.	Gentianaceae	Pyrocatechic acid (2,3-dihydroxybenzoic acid	ND	Anti-cancer	215
<i>Gentiana kochiana</i> Perr. et Song	Gentianaceae	Gentiakochia-nin/ gentiacualein /decussatin/xanthone glycosides/ isogentiakochianoside / gentia-caulein-1-O-glucoside /bellidifolin/demethyl-bellidifolin	AP	C6 rat glioma/ U251 human glioma cell lines.	216
<i>Ginkgo biloba</i> L.	Ginkgoaceae	Ginkgo-flavone glycosides/terpenoids/ Ginkgolides and Bilobalides	L	HepG2 (BCRCNo. 60025) / Hep3B.2.1-7 (Hep3B, BCRC No. 60434)	217
<i>Glechoma hederacea</i> L.	Lamiaceae	Germacrene D/ germacrene B T/ (Z)-β-ocimene/ β-elemene/ 1.8-cineole	AP	Anti-cancer	218
<i>Gleditsia caspica</i> Desf.	Fabaceae	Gleditsia saponins C/E/ Gleditsioside I	Fr.	Breast cancer/ nasopharyngeal carcinoma	219
<i>Gleditsia sinensis</i> Lam.	Fabaceae	Absolute ethanol	Fr.	(SLMT-1, HKESC-1 and HKESC-2) and non-tumor NIH 3T3	220
<i>Globularia alypum</i> L.	Globulariaceae	Tannins/flavonoid/ coumarins/sterols	L	Anti-cancer	221
<i>Glochidion eriocarpum</i> Ex Benth.	Champ.	Triterpenoid saponins/ glochieriosides A/B/ triterpenes	AP	HL-60/HT-29 MCF-7/ SK-OV-3	222
<i>Glochidion sphaerogynum</i> (Mull.Arg.) Kurz.	Phyllanthaceae	5, 6 and lup-20(29)ene-3α,23-diol	R St. W	MCF-7	223
<i>Glycyrrhiza uralensis</i> Fisch.	Fabaceae	Hexane/Ethanol	S	H9c2	224
<i>Gymnocladus chinensis</i> Baill.	Fabaceae	Triterpenoid/ saponin	L	HL-60 cells	225
<i>Hagenia abyssinica</i> (Bruce) J.F. Gmel.	Rosaceae	Kosins	F.F	Murine adenocarcinomas of the colon	226
<i>Hannoa chlorantha</i> Engl. & Gilg.	Simaroubaceae	Quassinooids/chaparrinone/15-desacetylundulatone	St. Ba.	P-388 cells	227
<i>Hannoa kleineana</i> Pierre & Engl.	Simaroubaceae	Quassinooids/chaparrinone/15-desacetylundulatone	St. Ba.	P-388 cells	228
<i>Hedranthera barteri</i> (Hook. f.) Pichon.	Apocynaceae	Ethanolic extract	L	Cytotoxic	229
<i>Hedyotis corymbosa</i> L.	Rubiaceae	Ursolic acid	WP	MCF-7	230



<i>Hedyotis diffusa</i> Willd	Rubiaceae	Methylanthraquinone	ND	MCF-7	231
<i>Hemidesmus indicus</i> R.Br.	Asclepiadaceae	Methanolic extract	Rh.	MCF-7	232
<i>Hernandia nymphaeifolia</i> (Presl.) Kubitzki	Hernandiaceae	Epiyangambin/epimagnolin/epi-aschantin/yatein/ deoxypodophyllotoxin	ND	Anti-cancer	233
<i>Hernandia peltata</i> Meisn.	Hernandiaceae	(-)deoxypodophyllotoxin/ deoxypicropodophyllin / (+)-epiaschantin/(-)-epieudesmin/ praderin/ 5'-methoxyyatein/ podorhizol/ deoxypodorhizone/bursehernin	WP	Anti-cancer/ anti-tumor	234
<i>Heterostemma brownii</i> Hayata)	Asclepiadaceae	Heteromines A and B	ND	Anti-tumor	235
<i>Hibiscus sabdariffa</i> L.	Malvaceae	Cardiac glycosides/ flavonoids/ saponins/alkaloids	AP	Anti-cancer	236
<i>Hibiscus syriacus</i> L.	Malvaceae	Acetone extract / water extract	Ba.	A549/H209/H661	237
<i>Himatanthus articulatus</i> (Vahl) Woodson	Apocynaceae	Flavonoids/ tannins/ anthraquinones/ alkaloids/saponins/ coumarins/ cardiac glycosides	Ba.	HT-29/ NCI-H460/MCF-7 (OVCAR-3 and RXF-393 NIH-3T3 (mouse embryo fibroblast cell).	238
<i>Himatanthus drasticus</i> (Mart.) Plume	Apocynaceae	Ethanolic extract	La.	HL-60/MDA-MB-435/SF-295/ HCT-8 (colon)Swiss mice	239
<i>Himatanthus fallax</i> (Mull. Arg.) Plumel	Apocynaceae	Isoplumericin/plumericin 7(R)-methoxy-8-epimataires compounds/ plumieride matairesinol/ pinoresinol	ND	Anti-cancer	240
<i>Himatanthus obovatus</i> (M. Arg.) W.	Apocynaceae	Different extracts	Ba. La.	Sarcoma 180 / Walker 256 carcinosarcoma	241
<i>Himatanthus sucuuba</i> (Spruce ex Müll. Arg.)	Apocynaceae	Lupeol	ND	Anti-cancer	242
<i>Hippophae rhamnoides</i> L. ssp.turkestanica	Elaeagnaceae	B-tocopherol/ γ-tocopherol/ β-tocotrienol / δ-tocotrienol / β-tocotrienol	Fr.	Anti-cancer	243
<i>Hippophae salicifolia</i> D. Don	Elaeagnaceae	Tocopherol	Fr.	Anti-cancer	244
<i>Holoptelea integrifolia</i> Planch.	Ulmaceae	Ethanolic extract	ND	Mature swiss albino mouse/Dalton's ascitic lymphoma cell (DAL)	245
<i>Hordeum vulgare</i> L.	Poaceae	Hydroxybenzoic acids: Gallic Protocatechuic/ p-Hydroxybenzoic/ Gentisic/Salicylic/Vanillic/ Syringic /Hydroxycinnamic acid/Ferulic Caffeic p-Coumaric Cinnamic Sinapic	S	Anti-cancer	246
<i>Hygrophila spinosa</i> T. Anders	Acanthaceae	Stigmast-5-en-3β-ol (β-Sitosterol)	L	Colon cancer	247
<i>Hypericum caprifoliatum</i> Cham. & Schlecht.	Hypericaceae	Hexane/Chloroform/ Methanol	AP	HT-29 human colon carcinoma cells and H-460 non-small cell lung carcinoma	248
<i>Hypericum annulatum</i> Moris subsp. <i>annulatum</i>	Hypericaceae	Hyperatomarin (a prenylated phloroglucinol)	AP	LAMA-84/K-562/ SKW-3/U-266 DOHH-2/HD-MY-Z/ EJ /MCF-7/ SAOS-2/ Neuro-2A	249
<i>Hypericum hookerianum</i> Wight and Arnott	Hypericaceae	Methanol extract	St.	Ehrlich ascites carcinoma (EAC) tumor	250
<i>Hypericum lysimachioides</i> var. <i>lysimachioides</i>	Hypericaceae	3-hydroxy fatty acids [3-hydroxy- tetradecanoic acid (3-OH-C14:0) and 3-hydroxy-octadecanoic acid (3-OH-C18:0)]	F	Anti-cancer	251
<i>Hypericum myrianthum</i> Cham. & Schlecht.	Hypericaceae	Hexane/Chloroform/ Methanol	AP	HT-29 /H-460	252
<i>Hypericum mysorense</i> Heyne.	Hypericaceae	ND	AP, F, R, St.	Swiss Albino mice /Ehrlich Ascitic Carcinoma	253
<i>Hypericum ternum</i> A. St. Hil.	Hypericaceae	Hexane /Chloroform /Methanol	AP	HT-29/H-460	254
<i>Hypoxis hemerocallidea</i> Fisch.Mey. & Ave-Lall.	Hypoxidaceae	Hypoxoside	R	Anti-cancer	255
<i>Hypoxis sobolifera</i> var <i>sobolifera</i> . Jacq.	Hypoxidaceae	ND	C	HeLa/ HT-29 / MCF-7	256
<i>Hypoxis stellipilis</i> Ker Gawl.	Hypoxidaceae	ND	C	HeLa/HT-29/ MCF-7	257
<i>Hyptis brevipes</i> Jacq.	Labiateae	Brevipolides (A-F)/ Flavonoids/triterpenoids Steroid/Glycoside	WP	MCF-7 HT-29/ Lu1	258
<i>Indigofera aspalathoides</i> Vahl.	Fabaceae	Methanol extracts	F	(EAC)	259
<i>Indigofera cassioides</i> Rottl. Ex.DC.	Fabaceae	Steroids/alkaloids tannins/flavonoids/ glycosides	R	(NIH 3T3)/(Vero)/ (HeLa)/(HEp-2) (HEpG-2)	260
<i>Indigofera suffruticosa</i> Mill	Fabaceae	Hexane/ethyl acetate / methanolic extracts	L	The HEp-2 cells (human epidermoid cancer cells)	261



<i>Indigofera tinctoria</i> L.	Fabaceae	Methanol extracts	ND	HCT 116	262
<i>Inula britannica</i> L.	Asteraceae	1-O-Acetylbritannilactone/ 1,6-O,O-diacetylbritannilactone/ 6α-O-(2-methylbutyryl)-britannilactone/ Neobrittannilactone A /Neobrittannilactone/ Quercetin/ Spinacetin /Diosmetin B	L	Many canceric cell lines	263
<i>Inula falconeri</i> Hook.f.	Asteraceae	Allelochemical/ eudesmane-type sesquiterpenoid/ 3β-caffeoxy-β1,8α-dihydroxyeudesm-4(15)-ene	R	Anti-cancer	264
<i>Ipomoea quamoclit</i> L.	Convolvulaceae	7- O -β -D-glucopyranosyl-dihydroquercetin-3- O -α -DGlucopyranosi	L	Vero/Hep-2/A-549	265
<i>Ipomoea batatas</i> (L.) Lam.	Convolvulaceae	Caffeic acid/ derivatives	Fr.	Anti-cancer	266
<i>Ipomoea cairica</i> Sweet.	Convolvulaceae	Cairicate/methoxycairicate/ myristyl alcohol	L	Anti-cancer	267
<i>Ipomoea squamosa</i> Choisy	Convolvulaceae	Cytotoxic macrocyclic/glycoresin/ ipomoeassin F	St.	A2780	268
<i>Iris pallasii</i> Fisch.	Iridaceae	Irisquinone	L T	Cervical carcinoma/ lymphosarcoma/ hepatoma/ Ehrlich ascites carcinoma	269
<i>Isatis tinctoria</i> L.	Brassicaceae	Isatin/ tryptanthrin/ deoxyvasinone/ isaindigotone/ isaindigotidone/ quinazolines/indolinone 8/ benzodiazepine /indigo/indirubin/isatan B/ glucoraphanin / progoitrine glucobrassicine	WP	Anti-cancer	270
<i>Isodon excisus</i> (Maximowicz) Kudo.	Labiateae	3-(3-methoxy-phenyl)-N-(3, 4, 5-trimethoxy-phenyl)-acrylamide (compound 343)	WP	HepG2 cells	271
<i>Isodon japonica</i> (Burman f.) Hara	Labiateae	Two new ent-kauranoids, named maoyecrystals A /B	L	Anti-cancer	272
<i>Isodon henryi</i> (Hemsley) Kudo	Labiateae	Minheryins A-G (1 – 7)/ent-kaurane diterpenoids/ leukamenin F/ excisoidesi/ leukamenin E /wangzaoin A/ pseurata A /racemosin A	St.	K562/ HepG2 cell lines	273
<i>Isodon macrocalyxin</i> (Dunn) Kudo.	Labiateae	ExcisaninA	Rh.	Hep3B/ MDA-MB-453	274
<i>Isodon nervosus</i> (Hemsl.) Kudo	Labiateae	Ent-kaurane diterpenoids, rabdonervosins D/E/ F	Fr.	HepG2/ CNE2/ PC-9/ZD/ HeLa/ MCF-7/HCT116 cell lines	275
<i>Isodon rubescens</i> (Hemsley) H. Hara	Labiateae	Oridonin	St., Ba., Fr.	Anti-cancer	276
<i>Isodon phyllostachys</i> (Diels) Kudo	Labiateae	Ent-Kaurene diterpenoids/ phyllostachysins D-H (1–5)/rabdoloxins A-B (6–7)/ rabdoinflexinB/amethystoidin A/ rabdokunmin D macrocalyxin E/ 5,7-dihydroxy-4-O -hydroxylflavone/ oleanolic acid /daucosterol	ND	K562 cells	277
<i>Jasminum sambac</i> Ait.	Oleaceae	Alkaloids/flavonoids/ terpenoids/carbohydrates/ proteins/phenols/tannins/ saponins /phytosterols	T W	Breast cancer	278
<i>Jatropha curcas</i> L.	Euphorbiaceae	ND	L, St.	(HepG2)/ NCIH460)/ (HCT116)/(HeLa)	279
<i>Jatropha dioica</i> Sesse ex Cerv. L	Euphorbiaceae	Alkaloids/Saponins/Tannins	L, T	Human cancer cell lines	280
<i>Jatropha elliptica</i> (Pohl) Oken	Euphorbiaceae	2,6-dimethyl-4-phenyl-pyridine-3,5-dicarboxylic acid diethyl ester	F	Anti-cancer	281
<i>Jatropha gossypifolia</i> L.	Euphorbiaceae	Aqueous	L	Anti-cancer	282
<i>Juglans mandshurica</i> Max.	Juglandaceae	P-Hydroxymethoxybenzobijujone (HMBBJ)	R	HeLa cell lines	283
<i>Juglans regia</i> L.	Juglandaceae	p-hydroxymethoxybenzobijujone (HMBBJ)	St.	HeLa cell line	284
<i>Juncus acutus</i> L.	Juncaceae	ND	L T	(stomach, esophagus, lung, oral cavity and pharynx, endometrium, pancreas and colon)	285
<i>Juniperus phoenicea</i> L.	Pinaceae	Widdrol	L	HT29	286
<i>Justicia rhodoptera</i> Baker. J. Linn. Soc	Acanthaceae	Justicidin	AP	HT-29/HT-116	287
<i>Justicia hyssopifolia</i> L.	Acanthaceae	Justiciresonal 2-(4-hydroxy-3-methoxyphenyl)-4-[(4-Hydroxy-3,5-Dimethoxyphenyl)methyl]-tetrahydrofuran-3-methanol	ND	A-549/MCF-7/ HT-29	288
<i>Kadsura ananasoma</i> kerr.	Schisandraceae	Arylnaphthalene lignan elenoside(β-D-glucoside)/Aglycone	ND	M19-MEL/CNS (SNB-19)/(UO-31)/(HCC-2998)	289



<i>Kaempferia galanga</i> L.	Zingiberaceae	Triterpene dilactones :Longipediolactones K(1)/L(2) /M(3)/N(4)/O(5)/P(6)/Triterpenoids Longipediolactones A(7)/D(8)/F(9)/G(10)/H(11)/I(12)/J(13)	ND	HL-60	290
<i>Kaempferia rotunda</i> L.	Zingiberaceae	Chloroform-soluble extract	ND	Anti-cancer	291
<i>Kigelia pinnata</i> (Jacq.)	Bignoniaceae	Cisplatin (cis-diaminedichloroplatinum II)	R, Rh.	Testes/Bladder/ ovary/Lung/Head/ Neck	292
<i>Knema angustifolia</i> (warb.)	Myristicaceae	Norviburtinal/ β-sitosterol	WP	Melanoma cell lines	293
<i>Knema elegans</i> (warb.)	Myristicaceae	Dichloromethane/Ethanoic solution	R	(NCI-H187)	294
<i>Knema glauca</i> (Blume.)	Myristicaceae	Myristinins A/Myristinins B	R	P388-D cells	295
<i>Koelreuteria henryi</i> Dummer	Sapindaceae	Cycloligans (Koelreuterin/Austrobailigans-1/Austrobailigans-2)	Fr.	(A-549)/(MCF-7)/(HT-29)	296
<i>Lamium purpureum</i> L.	Labiateae	Flavonol 3-O-glucoside/ malonyltransferases/ Lp3MaT1	F	Anti-cancer	297
<i>Lannea coromandelica</i> (Houtt.) Merr.	Anacardiaceae	MeOH extract	L	Panc-1/MIA/ Capan-1/Hs68	298
<i>Lantana camara</i> L.	Verbenaceae	Different extract	R	Jurkat leukemia cell line	299
<i>Laportea crenulata</i> Gaud	Urticaceae	MeOH extract	S	Anti-cancer	300
<i>Larrea divaricata</i> Cav	Zygophyllaceae	Methanolic and methane dichloride extracts	L	MCF-7	301
<i>Ledum groenlandicum</i> Retzius	Ericaceae	Ursolic acid	L	Anti-cancer	302
<i>Ledum palustre</i> (Led)	Ericaceae	Quercetin glycoside	L	(KB)	303
<i>Lens culinaris</i> Medik.	Fabaceae	Lectins/ proteins / glycoproteins	ND	(H3B)/(JAr)/ (B16) /(ROS)	304
<i>Leonurus heterophyllum</i> L.	Labiateae	Phosphate-buffered saline	AP	C-33A A-549 ATCC MCF7 (ATCC) MDA-MB-453 DU 145 LN CaP TsuPr1	305
<i>Lepechinia spicata</i> Willd.	Labiateae	ND	ND	Uterine cancer	306
<i>Leptadenia hastata</i> (Pers.) Decne	Asclepiadaceae	Lupeol	L	Anti-cancer	307
<i>Leptospermum scoparium</i> J.R.Forst. & G.Forst.	Myrtaceae	1,2-dicarbonyl compounds 3-deoxyglucosulose (3-DG)/ glyoxal (GO)/ methylglyoxal (MGO)	AP	Anti-cancer	308
<i>Licania intrapetiolaris</i> Spreng. ex Hook.f.	Chrysobalanaceae	Triterpenoid cucurbitacin B	WP	KB cell line	309
<i>Ligularia altaica</i> DC.	Asteraceae	Bisabolane sesquiterpenes/Altaicalarin A–D (1–4)/three known analogues (5–7)	Fr.	(A-549)/(MCF7)/ (KB)	310
<i>Ligularia duciformis</i> (C.Winkl.) Hand.-Mazz	Asteraceae	Sesquiterpenoids	Fr.	Bel-7402/A-549/ HCT-8	311
<i>Ligularia macrophylla</i> (Ledeb.) DC.	Asteraceae	Eremophilane sesquiterpenes	F, Bu.	Anti-cancer	312
<i>Ligularia mullensis</i> Hand.-Mazz.	Asteraceae	Eremoligulari/ bieremoligularolide	Fr.	(HL-60)/(SMMC-7721)/ (HeLa)	313
<i>Ligularia virgaurea</i> (Maxim.) Mattf. ex Rehder & Kobuski	Asteraceae	Eremophilane sesquiterpenes	Fr.	(SMMC-7721)/ (HL-60)/ (L-02) cells.	314
<i>Ligustrum lucidum</i> Ait	Asteraceae	Oleanolic acid/ ursolic acid	L	Anti-cancer	315
<i>Linum album</i> Kotschy ex Boiss.	Linaceae	Podophyllotoxin	L	Anti-cancer	316
<i>Linum campanulatum</i> L.	Linaceae	Podophyllotoxin	L	Anti-cancer	317
<i>Linum lewisii</i> Pursh	Linaceae	Podophyllotoxin	St.	Anti-cancer	318
<i>Linum persicum</i> L.	Linaceae	MeOH extract	Fr.	Hela/A549/ K56 and Jurkat (T cell leukemia)	319
<i>Linum usitatissimum</i> L.	Linaceae	Secoisolariciresinol (seco) and matairesinol (mata)	ND	Anti-cancer	320
<i>Lippia alba</i> Mill.	Verbenaceae	Cardiac glycosides/ flavonoids/alkaloids/tannins	St. Ba.	Anti-cancer	321
<i>Lippia graveolens</i> Kunth.	Verbenaceae	Methanol extracts	L	Anti-cancer	322
<i>Lithospermum ruderale</i> Douglas ex Lehm.	Boraginaceae	ND	L	Breast cancer	323
<i>Lonicera caerulea</i> L.	Caprifoliaceae	Lipds/Saccrides	P.	HL-60 leukemia cell line	324
<i>Lonicera edulis</i> (Turcz. ex Herder) Turcz. ex Frey	Caprifoliaceae	Anthocyanin	Ba.	HT-29 colorectal adenocarcinoma cell	325
<i>Lonicera macranthoides</i> Thunb.	Caprifoliaceae	Macranthoside B (hederagenin saponin)	L	HepG2/ MGC-803/ MCF-7/ SW1116/ U251/ C6/ B16F1 / B16F10/ HepG2/ MGC-803/ MCF-7/ SW1116/ U251 cells	326
<i>Lonicera japonica</i> L.	Caprifoliaceae	Aqueous/ alcoholic extract	ND	Anti-cancer	327



<i>Luffa acutangula</i> (Linn.) Roxb.	Cucurbitaceae	Methanol extracts	Ba	HL-60, Jurkat and RAW 264.7 cell lines	328
<i>Luffa aegyptiaca</i> Miller	Cucurbitaceae	N-hexane/chloroform/ ethyl acetate extract	St.	Anti-cancer	329
<i>Luffa cylindrica</i> Linn. M. J. Roem.	Cucurbitaceae	N-hexane/chloroform and ethyl acetate extract	F	Anti-cancer	330
<i>Lycium barbarum</i> L.	Solanaceae	Polysaccharide- protein complex	R, Ba.	S180 cell	331
<i>Lycopus lucidus</i> Turcz. h	Lamiaceae	Essential oils	Ba.	(Bel-7402 and Hep G2)/(MDA-MB-435S and ZR-75-30)/ (HeLa)/ (ACHN)	332
<i>Lycoris radiata</i> (L.Herit.)	Amaryllidaceae	ND	WP	F10 melanoma	333
<i>Luxemburgia octandra</i> St. Hil	Ochnaceae	Luxenhalcone	R/St. L/Fr.	HT-29/NCI-H460/ MCF-7/OVCAR-3/ RXF-393	334
<i>Maackia amurensis</i> Rupr. & Maxim.	Fabaceae	Lectins are proteins/ glycoproteins	ND	(H3B)/(JAr)/(B16) /(ROS) cell lines	335
<i>Machaerium aristulatum</i> (Spruce ex Benth.) Ducke	Fabaceae	Machaerium/aristulatum/ pterocarpan(+)-maackiain isoflavone/ formononetin Flavonoids/pterocarpans,5-9 cinnamylphenols,6,8,10 quinoids/triterpenoids	St.	KB/ Col-2/ hTERT-RPE1 cells	336
<i>Maclura tinctoria</i> L. (Gaud.)	Moraceae	Glycosides	St. Ba.	Anti-cancer	337
<i>Maclura pomifera</i> Rafin.	Moraceae	Prenylated isoflavones: scandenone / auriculasin	Fr.	Anti-cancer	338
<i>Magnolia officinalis</i> Rehd. Et Wils	Magnoliaceae	Honokiol	ND	(PC-3, LNCAp, and C4-2)	339
<i>Mahonia aquifolium</i> (Pursh) Nutt.	Berberidaceae	Bis-benzylisoquinoline / protoberberine alkaloids	St. Ba.	HL-60/3T3	340
<i>Mahonia bealei</i> (Fort.) Carr.	Berberidaceae	Berberine	L	HT-29 cells	341
<i>Marjorana hortensis</i> L.	Labiateae	Essential oils	L	Leukemia HL-60/ NB4 cells	342
<i>Mallotus japonicus</i> Muell. Arg.	Euphorbiaceae	Mallotojaponin/mallotolerin/mallotochromene/ mallotophenone/mallotochromanol/isomallotochromanole	Pe.	KB cells/ C3H IOU2 cells	343
<i>Mallotus philippinensis</i> Muell.	Euphorbiaceae	Tannins	Ba.	Anti-cancer	344
<i>Mallotus tetracoccus</i> (Roxb.) Kurz.	Euphorbiaceae	Bis (2-ethyl hexyl) phthalate/ 3-methyl-2-(2-oxypropyl) furan /E-8-methyl-9-tetradecen-1-ol -acetate/ Octadecanoic acid / Longiborneol	L	Anti-cancer	345
<i>Marrubium parviflorum</i> Fish et Mey.	Lamiaceae	Hexane/methanol extracts	Ba.	Anti-cancer	346
<i>Marsdenia tenacissima</i> Roxb.	Asclepiadaceae	Polyoxygenane glycosides	St.	Anti-cancer	347
<i>Matricaria chamomilla</i> L.	Asteraceae	Essential oils	F	Leukemia HL-60/ NB4 cells	348
<i>Maytenus blepharodes</i> Lundell	Celastraceae	Phenolic triterpenes/ isoblepharodol/7-oxoblepharodol/blepharotriol/6-deoxoblepharodol	R Ba.	Anti-cancer	349
<i>Maytenus chuchuhuasca</i> krukovi.	Celastraceae	Tingenone/ 22b-hydroxytingenone / pristimerin/ celastrol	Ba.	Anti-cancer	350
<i>Maytenus diversijolia</i> (Maxim.) Ding	Celastraceae	Maytansine	WP	P-388 lymphocytic leukemia	351
<i>Maytenus emarginata</i> (Willd.)	Celastraceae	Phenol	R, St. L, Fr.	Anti-cancer	352
<i>Maytenus ilicifolia</i> Martius	Celastraceae	Pristimerin	R, Ba.	HL-60/K-562 SF-295 /HCT-8 MDA/MB-435	353
<i>Maytenus rigida</i> Mart.	Celastraceae	Betulinic acid/ Triterpenes	WP	KS cell line	354
<i>Menyanthes trifoliata</i> L.	Celastraceae	Polysaccharides	WP	Anti-cancer	355
<i>Maytenus trichotoma</i> Turcz	Celastraceae	Maytansine/Maytanprine/ maytanbutine/ maytanvaline/ Maytanacine/maytanprine/ maytanbutine	WP	(KB) cells/Mouse L-1 210/P388 /Mouse sarcoma 180/Lewis Lung carcinoma solid tumors/Rat Walker 256	356
<i>Melia azadirachta</i> L.	Meliaceae	Meliodinines A/B/C/D/E/F/G/	WP	HL-60/SMMC 7721/A549/SK-BR-3	357
<i>Melia toosendan</i> Sieb. & Zucc	Meliaceae	Toosendanin	ND	MMC-7721(p53+) and Hep3B	358
<i>Melissa officinalis</i> L.	Lamiaceae	Cardiac glycosides/flavonoids/ alkaloids/ tannins	L	Anticancer	359
<i>Mendoncia cowanii</i> (S. Moore) Benoist	Acanthaceae	Meliavolin/meliavolkin	R Ba.	(MCF-7)	360
<i>Minquartia guianensis</i> Aubl.	Olacaceae	Minquartynoic acid	St. Ba.	Ovarian cancer cell lines	361
<i>Mitrella kentii</i> Miq.	Annonaceae	Terpenylated dihydrochalcone/ 2',6'-ihydroxy-4'-methoxydihydrochalcone (+)-catechin	St. Ba.	KB cells	362



<i>Momordica charantia</i> L.	Cucurbitaceae	(S)-18-hydroxyminquarty-noic acid (1), (S)-(A)-minquartyoic acid/ (E)-15,16-dihydropinquartyoic acid	T	Ovarian cancer cell lines	363
<i>Ocimum gratissimum</i> L.	Olacaceae	ND	L	Prostate cancer/ breast cancer	364
<i>Ocotea acutifolia</i> (Nees) Mez	Lauraceae	(+)-6S-ocoteine N-oxide/ (+)-norocoxylonine	L, St. S, Ba.	(Hep-2, MCF-7, B16-F10 and 786-0)	365
<i>Ocotea caparrapi</i> (Nates) Dugand	Lauraceae	Caparratriene	O	CEM leukemia cells	366
<i>Ocotea leucoxylon</i> (Sw.) de Lanessan	Lauraceae	Dicentrine/Dicentrinone	N.D.	Anti-cancer	367
<i>Oenanthe javanica</i> ssp. <i>stolonifera</i> (Roxb. ex DC.) Murata	Apiaceae	Methanol extracts	WP	HCT116	368
<i>Oldenlandia diffusa</i> (Willd.) Roxb.	Rubiaceae	Methanol extract	L	Tumor and cancer cell line	369
<i>Olea europaea</i> L.	Oleaceae	Maslinic acid	ND	HT29	370
<i>Olea ferruginea</i> Royal.	Oleaceae	Terpenoids/Saponins	WP	Anti cancer	371
<i>Ononis hirta</i> Poir. in Lam.	Fabaceae	MeOH extract	AP	Hep-2/ MCF-7/ Vero cell lines	372
<i>Ononis sicula</i> Guss.	Fabaceae	MeOH extract	AP	Hep-2/MCF-7/ Vero cell line	373
<i>Ophiorrhiza mungos</i> L.	Rubiaceae	CPT /10-methoxycamptothecin	R, S	Anti cancer	374
<i>Ophiorrhiza prostrata</i> D. Don	Rubiaceae	Camptothecin	L, S	Anti cancer	375
<i>Opuntia ficus-indica</i> (L.) Mill	Cactaceae	Betanin a betacyanin	F, Fr.	K562	376
<i>Origanum majorana</i> (L.) H. Karst	Lamiaceae	Carvacrol/thymol	L	HepG2/C3A/ SK-HEP-1/ HA22T/VGH Hep3B /PLC/PRF5	377
<i>Origanum vulgare</i> L.	Lamiaceae	Ethanol extract	ND	Caco2	378
<i>Oryza sativa</i> L.	Poaceae	Cyanidin (1) and malvidin	ND	U937	379
<i>Ostericum koreanum</i> (Maxim.) Kitag.	Apiaceae	Oxypeucedanin	R	DU145	380
<i>Ouratea hexasperma</i> (A. St.-Hil.) Baill.	Ochnaceae	7"-O-Methyl-agathisflavone	L	Ehrlich ascitic carcinoma cells / K562	381
<i>Ouratea parviflora</i> (DC.) Baill	Ochnaceae	Agathisflavone/ 7"-methyl-agathisflavone /amentoflavone/ apigenine / stigmasterol/ campesterol /lupeol / friedeline/α-tocoferol	L	Anti-cancer	382
<i>Ouratea semiserrata</i> (Mart. & Nees) Engl.	Ochnaceae	Agathisflavone	L	Ehrlich ascitic carcinoma cells / K562	383
<i>Oxalis corniculata</i> L.	Oxalidaceae	Ethanolic extract	WP	Ehrlich ascitic carcinoma(EAC)	384
<i>Panax notoginseng</i> (Burk.) F. H. Chen. Pron.	Araliaceae	Saponin	R	SW-480	385
<i>Panax quinquefolium</i> L.	Araliaceae	Ginsenosides	R	MCF-7/MDA-MB-231	386
<i>Pancratium litorale</i> Jacq.	Amaryllidaceae	Pancratistatin	ND	Human cancer cell lines and P388	387
<i>Parinari curatellifolia</i> Planch. ex Benth.	Chrysobalanaceae	Ent-kaurene diterpenoids/ 13-methoxy-1 Soxozopatlin/ 13-hydroxy-1Soxozopatlin	R Ba.	ZR-75-I breast cancer cells.	388
<i>Parinari sprucei</i> Hook. f.	Chrysobalanaceae	Nor-kaurene/ ent-kaurene diterpenes	L	Lu1/Col2/KB/ LNCaP/ Htert-rpe1/ HUVEC	389
<i>Paris polyphylla</i> Sm. var. <i>yunnanensis</i> (Fr.)	Trilliaceae	Saponin polyphyllin D	T L	Liver cancer	390
<i>Patrinia heterophylla</i> Bunge	Valerianaceae	Polysaccharides	WP	HeLa cell line	391
<i>Patrinia scabra</i> Bunge	Valerianaceae	Lignans /azulenes, caryophyllene oxide I	R	(HO-8910) / (Bel-7402)	392
<i>Pedicularis resupinata</i> L.	Scrophulariaceae	2,6 dimethoxybenzoquinone	ND	P-388 lymphocytic leukemia	393
<i>Pespermum nocturnum</i> L.	Solanaceae	ND	WP, L	MCF-7 cell lines	394
<i>Petunia meleagris</i> Planch	Solanaceae	MeOH extract	L	Panc-1/ MIA/ Capan-1/ Hs68	395
<i>Petunia phoenicea</i> D. Don ex Loudon	Solanaceae	MeOH extract	L	Panc-1/MIA/ Capan-1/Hs68	396
<i>Phaleria macrocarpa</i> (Scheff.) Boerl (Pm)	Thymelaeaceae	Aqueous extract	Fr.	Anti-cancer	397
<i>Pharbitis nil</i> L.	Convolvulaceae	Ethanol extract	R	AGS	398
<i>Phytolacca americana</i> L.	Phytolaccaceae	Methanolic extract Hexane Butanol ethyl acetate	R	MCF-7/HCT-116	399



<i>Phytolacca acinosa</i> Roxb.	Phytolaccaceae	Acinospesigenin	Be	Anti-cancer	400
<i>Phytolacca decandra</i> L.	Phytolaccaceae	87% extra-neutral alcohol	ND	MCF-7 /MDA-MB-231 T	401
<i>Picea abies</i> (L.) H.Karst	Pinaceae	Hydroxymatairesinol I	R	(HL-60) cells	402
<i>Piliostigma thonningii</i> (Schumach.) Milne-Redh.	Caesalpiniaceae	Saponins/ flavonoids/phenolics/glycosides/anthraquinones	S	Anti-cancer	403
<i>Pinus parviflora</i> Sieb	Pinaceae	Polysaccharides/arabinose /mannose/galactose/glucose/ uronic acid	Co.	Mouse macrophage-like cell line J774.1.	404
<i>Pinus acutisleginum</i>	Pinaceae	Aristolactams/ 4,5-dioxoaporphines	ND	(A-549, SK-MEL-2 and SK-OV-3)	405
<i>Pinus argyrophyllum</i> L.	Pinaceae	Aristolactams / 4,5-dioxoaporphines	ND	(A-549, SK-MEL-2 and SK-OV-3)	406
<i>Pinus koraiensis</i> Siebold & Zucc	Pinaceae	Procyanidins	Ba.	HeLa cell line	407
<i>Pinus massoniana</i> Lambert	Pinaceae	Procyanidins	Ne.Ba.	Human hepatoma BEL-7402 cells	408
<i>Pinus maritima</i> Aiton	Pinaceae	Phenolic acids/polyphenols / flavonoids	Ba.	Skin cancer in albino swiss mice	409
<i>Pinus morrisonicola</i> Hay.	Pinaceae	Aqueous extract	Ne., Ba.Co.	U937	410
<i>Piper betel</i> L.	Piperaceae	Aristolactams and 4,5-dioxoaporphines	ND	Anti-cancer	411
<i>Piper chaba</i> L.	Piperaceae	EtOH/Aqueous	Fr.	MCF7 cell line	412
<i>Piper interruptum</i> Opiz.	Piperaceae	EtOH/Aqueous	St.	MCF7 cell line	413
<i>Piper longum</i> L.	Piperaceae	Beta -sitosterol	Fr.	Anti-cancer	414
<i>Piper methysticum</i> G. Forster.	Piperaceae	Flavokavain A/Flavokavain B/dihydromethysticin/ 7,8 dihydrokavain kavain/ demethoxyyangonin/ cis-yangonin/trans-yangonin	L	Ovarian and leukaemia cell lines.	415
<i>Piper sarmentosum</i> Roxb.	Piperaceae	Ethanolic extract	WP	(HepG2)	416
<i>Piper schmidtii</i> Hook. f.	Piperaceae	Aristolactams/ 4,5-dioxoaporphines	ND	(HepG2)/ non-malignant Chang's liver cell lines	417
<i>Piper wightii</i> Miq.	Piperaceae	Aristolactams/ 4,5-dioxoaporphines	ND	(HepG2)/non-malignant Chang's liver cell lines	418
<i>Piptadeniastrum africanum</i> Tom.	Fabaceae	α -humulene	ND	C32/ACHN/ LNCaP/MCF-7	419
<i>Pittosporum viridisflorum</i> Sims.	Pittosporaceae	Triterpenoid saponin(pittoviridoside)	WP	A2780	420
<i>Plantago argentea</i> Chaix.	Plantaginaceae	Flavonoids /luteolin-7-O-glucoside/apigenin-7-O-glucoside/luteolin/apigenin/ rutin/quercetin	AP	(MCF-7)	421
<i>Plantago asiatica</i> L.	Plantaginaceae	Ethanol extract	R	AGS	422
<i>Plantago cordata</i> Lam.	Plantaginaceae	Luteolin-7-O-glucoside/ Luteolin/Etoposide	L	(MCF-7)/(UACC-62)/(MCF-7)/(UACC-62)	423
<i>Plantago holosteum</i> Scop.	Plantaginaceae	Flavonoids /luteolin-7-O-glucoside/apigenin-7-O-glucoside/luteolin/apigenin/ rutin/quercetin	AP	Carcinoma cell line (MCF-7) melanoma cell line	424
<i>Plantago macrostachys</i> Decne.	Plantaginaceae	Luteolin-7-O -glucoside /Luteolin/Etoposide	L	(MCF-7) /(UACC-62) / (MCF-7) / (UACC-62)	425
<i>Plantago major</i> L.	Plantaginaceae	Aqueous extract	L	Breast carcinoma and melanoma cells Ehrlich ascites tumours	426
<i>Plantago maritima</i> L.	Plantaginaceae	Flavonoids /luteolin-7-O-glucoside/apigenin-7-O-glucoside/luteolin/apigenin/ rutin/quercetin	AP	(MCF-7)	427
<i>Plantago mexicana</i> (Link) Pilg	Plantaginaceae	Flavonoids /luteolin-7-O-glucoside/apigenin-7-O-glucoside/luteolin/apigenin/ rutin/quercetin	AP	(MCF-7)	428
<i>Pleione bulbocodioides</i> (Franch.)	Plantaginaceae	Stilbenoids	Tu. S	Anti-cancer	429
<i>Plumbago zeylanica</i> L.	Plumbaginaceae	Plumbagin	R	KBM-5/U937/ U266/H1299/A293 /SCC-4	430
<i>Plumeria rubra</i> L	Apocynaceae	Ethanolic extract	L	Ehrlich ascites carcinoma (EAC) cell	431
<i>Podophyllum emodi</i> Wall.	Berberidaceae	Podophyllotoxin/ demethylpodophyllotoxin/ deoxypodophyllotoxin/ dehydropodophyllotoxin /podophyllotoxone/ 1b, 2b, 3b, 40 -demethylpicropodophyllone	Rh.	HeLa-C3 cell line	432
<i>Podophyllum hexandrum</i> Royle.	Berberidaceae	Podophyllotoxin	R, Rh.	Anti-cancer	433
<i>Poivrea coccinea</i> (Sonn.) Thouars	Combretaceae	Podophyllotoxin/ Deoxypodophyllotoxin/4'-demethylpodophyllotoxin/ α peltatin/ β peltatin	R	Sarcoma 37 in the mouse/	434
<i>Polygala vulgaris</i> L.	Polygalaceae	4-alkylidene-b-lactams	ND	H9c2	435
<i>Polygonatum multiflorum</i> L.	Polygalaceae	Monocot mannose- binding lectin	L	L1210/ FM3A/ Molt 4/clone 8 /CEM cells	436
<i>Polygonum cuspidatum</i> Siebold &	Polygonaceae	Resveratrol	R	Lung carcinoma (LLC) tumors	437



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<i>Polygonum tinctorium</i> Lour.	Polygonaceae	Tryptanthri	ND	(U-937)/ (HL-60)	438
<i>Polygonatum verticillatum</i> L.	Asparagaceae	Methanol extracts	AP	Cytotoxic	439
<i>Pongamia glabra</i> (L.) Pierre	Fabaceae	Lonchocarpin/Lanceolatin B	R	Anti-cancer	440
<i>Pongamia pinnata</i> (L.) Pierre	Fabaceae	Prenylated flavon-4-ol/Pongaflavanol/ tunicatachalcone	St. Ba.	Anti-cancer	441
<i>Potentilla discolor</i> Bunge (PD)	Rosaceae	ND	L	HepG-2 hepatocellular carcinoma cell line	442
<i>Prunus africana</i> (Hook f.)	Rosaceae	Tethanolic extracts	ND	(PC-3 and LNCaP cells)	443
<i>Psoralea corylifolia</i> L.	Fabaceae	Psoralen and isopsoralen,	S	Anti-tumor	444
<i>Psychotria forsteriana</i> (Ruiz & Pav.) Mull. Arg	Rubiaceae	Quadrigemine A /Quadrigemine B / Psychotridine /Isopsychotridine C	L	Rat hepatoma cells (HTC line) 7288 of a Morns rat hepatoma	445
<i>Psychotria leiocarpa</i> Cham. & Schlecht.	Rubiaceae	N, β -d-glucopyranosyl vincosamide	L	Anti-cancer	446
<i>Pteridium aquilinum</i> L.	Pteridaceae	ND	R	Cancers (i.e., esophageal, gastric)	447
<i>Pteris ensiformis</i> Burm.	Pteridaceae	Pterosin / β -D-glucopyranosyl benzoic acid ester /benzoic acid / 5-O-coumaroylquinic acid /coumaric acid / cyclolaudenol / β -sitosterol	ND	Hep G2/A549/ MDA-MB-231/ MCF-7/ Ca9-22/ HL 60	448
<i>Pterocarpus marsupium</i> Roxb.	Pteridaceae	Pterostilbene /resveratrol	ND	MCF-7 and PC3 cancer cell lines.	449
<i>Pterocarpus santalinus</i> L.	Pteridaceae	Methanol extract	ND	HeLa.	450
<i>Psoralea corylifolia</i> L.	Fabaceae	Psoralen/Isopsoralen	S	K562/K562/ADM cancer cells	451
<i>Psorospermum cf. molluscum</i> (Pers.) Hochr.	Hyericaceae	Chloropsoroxanthin /p-soroxanthin	ND	Anti-cancer	452
<i>Punica granatum</i> L.	Lythraceae	Tocopherol/Ursolic acid/daucosterol/ campesterol/stigmasterol/beta-sitosterol/Punicic acid/gallic/ellagic/caffeiCatechins/epicatechins/ Procantocyanidins/anthocyanidins/Quercetin	Fr. Pee.	Anti-cancer	453
<i>Pulsatilla koreana</i> Naka	Ranunculaceae	Saponin	R	MEL-2/MCF-7/ (LLC)	454
<i>Pycnanthus angolensis</i> (Welw.) Warb	Myristicaceae	Lignan-lactones (Pycnanolide A/B)	L	Anti-cancer	455
<i>Quisqualis indica</i> L.	Combretaceae	MeOH extract	L	Panc-1/MIA/ Capan-1/ human fibroblast cell line/ Hs68	456
<i>Rheum emodi</i> Wall. ex Meissn.	Polygonaceae	Methanol extracts phenolic extract	Rh.	MDA-MB435S / Hep3B cell lines	457
<i>Rubia akane</i> nakai	Rubiaceae	Anthraquinones	R	Anti cancer	458
<i>Rubia cordifolia</i> L.	Rubiaceae	1-hydroxytectoquinone	ND	Ehrlich ascites/ carcinoma A375 (malignant skin melanoma)/ Hep2 (epidermoid laryngeal carcinoma) / U937 (lymphoma).	459
<i>Rubus acuminatus</i> L.	Rosaceae	Hexane/EtOAc/ MeOH extracts	Fr.	SF-268/NCI-H460/MCF-7	460
<i>Rubus idaeus</i> cv. Heritage L.	Rosaceae	Hexane/EtOAc/ MeOH extracts	Fr.	SF-268/NCI-H460 /MCF-7	461
<i>Rubus idaeus</i> Golden L.	Rosaceae	Hexane/EtOAc/ MeOH extracts	Fr.	SF-268/NCI-H460 /MCF-7	462
<i>Rubia wallichiana</i> Decne	Rubiaceae	Rubiawallin-A / B and -C	St.	(KB)/(Hepa-3B) /(Hela)/(Colo-205)	463
<i>Rumex acetosa</i> L.	Polygonaceae	Chrysophanol /physcion	AP	A549/SK-OV-3/ SK-MEL-2/XF498 /HCY15	464
<i>Rumex japonicus</i> Houtt	Polygonaceae	Alkaloids/ saponins/tannins/ cardiacglycosides/ anthraquinone/glycosides/flavonoids/amino acids/steroids/ terpenoids/carbohydrates	L	Anti-cancer	465
<i>Rumex vesicarius</i> L.	Polygonaceae	Phenolics /Flavonoids /Phytochemical	S	Anti-cancer	466
<i>Ruta graveolens</i> L.	Rutaceae	Ruta	ND	Normal human blood lymphocytes/ B-lymphoid cells/ brain cancer cells	467
<i>Salvia pinardii</i> Boiss.	Lamiaceae	α -humulene	ND	C32 /ACHN/ LNCaP/MCF-7	468
<i>Salvia plebeia</i> Vahl.	Lamiaceae	Ethanol extracts/waterextract	ND	Anti-cancer	469
<i>Salvia sahendica</i> Boiss. & Buhse	Lamiaceae	alpha- and beta-pinene	AP	Anti-cancer	470
<i>Sapindus emarginatus</i> Vahl.	Sapindaceae	Triterpenoid Saponin	Fr.	Human gastric adeno-carcinoma (AGS) cell lines	471
<i>Sapindus mukorossi</i> L.	Sapindaceae	Methanol (MeOH)/ ethyl acetate (EA) /hexane as solvents	ND	Human skin/lung/liver/ prostate/cervical/bone/bladder/breast cancer cell line	472



<i>Sasa palmata</i> (hort. ex Burb.) E.G. Camas	Poaceae	α -humulene	ND	C32/r /ACHN LNCaP/MCF-7	473
<i>Saussurea lappa</i> DC.	Asteraceae	Ethanol extract	R	AGS human gastric carcinoma	474
<i>Schinus lentiscifolius</i> (Gill. ex Lindl.) Engler.	Anacardiaceae	α -phellandrene/ β -phellandrene/ α -pinene/	Be.	Anti-cancer	475
<i>Schizolaena hystrix</i> Capuron	Sarcolaenaceae	Schizolaenone A/ schizolaenone B/4'-O-methylbonannione /nymphaeol A/bonannione A/macarangaflavanone B/ flavanol bonanniol A	ND	A2780	476
<i>Schisandra chinensis</i> (Wuweizi)	Schisandraceae	Schizandrins	ND	Human breast cancer cells (MCF-7)	477
<i>Scirpus yagara</i> Ohwi.	Cyperaceae	Transresveratrol/scirpusin A/scirpusin B/ p-hydroxycinnamic acid/hydroxycinnamic acid/	Rh.	Stomach cancer	478
<i>Scrophularia ningpoensis</i> Hemsl	Scrophulariaceae	Ningposide D / catalpol/oleanonic acid/ ursolic acid/cinnamic acid	R	A549 cells /MCF7cells /T24S /K562	479
<i>Scrophularia striata</i> Boiss.	Scrophulariaceae	Aqueous extract	AP	Human astrocytoma cell line	480
<i>Scutellaria baicalensis</i> Georgi.	Lamiaceae	Ethanol extract	R	Prostate cancer/ small-cell lung cancer/acute myeloid leukemia	481
<i>Scutellaria barbata</i> D.Don.	Lamiaceae	Mercury/arsenic	WP	SKOV3/CAOV3/ BT474/MDA231/MCF7/SKBR3/ A2780/Cell lines OVCAR-3/Hey HeyC2/HA8/OCC/A549 cell	482
<i>Scutellaria Indica</i> L.	Lamiaceae	Methanol extract	R	HeLa/ MCF-7 PC12 /NIH 3T3/AGS	483
<i>Scutellaria litwinowii</i> Bornm. & Sint	Lamiaceae	Flavonoids	R	AGS/HeLa/MCF-7/ PC12/NIH 3T3	484
<i>Selaginella willdenowii</i> (Desv. ex Poir.) Baker	Selaginellaceae	Biflavonoids	L	L929 murine carcinoma cells	485
<i>Selaginella tamariscina</i> (Beauv.) Spring.	Selaginellaceae	Biflavonoids	L	Panel of human cancer cell lines	486
<i>Semecarpus anacardium</i> L.	Anacardiaceae	Catechol	Fr. S	(CEM and CEM/VLB)/ (MCF-7)/(SW620 and W620Ad300)(MCF-10A) (PBMN)	487
<i>Sempervivum armenum</i> Boiss. & Huet.	Crassulaceae	Acetonitrile/lithospermaside/menisdaurilide/aquil egiolide/ehretiosideB/menisdaurin/thalicticoside/magnoflorine	AP R	Anti-cancer	488
<i>Sida cordifolia</i> L.	Malvaceae	Gallic acid equivalents	L/St./ R, WP	Anti-cancer	489
<i>Simarouba glauca</i> DC.	Simaroubaceae	canthin-6-one/2-methoxycanthin-6-one/9-methoxycanthin-6-one/2-hydroxycanthin-6-one /4,5-dimethoxycanthin-6-one/ 4,5-dihydroxy canthin-6-onea/ limonoid, melianodiol/ an acyclic squalene-type triterpenoid, 14-deacetylene /coumarins/scopoletin /fraxidin/triolein trilinolein	T	(KB)	490
<i>Solanum dubium</i> Dun.	Solanaceae	β -solamarine	WP	Sarcoma 180 in mice	491
<i>Solanum dulcamara</i> L.	Solanaceae	Alcoholic extract	Ba.	Warts/ Sarcoma 180 in mice	492
<i>Solanum incanum</i> L.	Solanaceae	Solamargine	ND	Hep3B cells	493
<i>Solanum indicum</i> L.	Solanaceae	β -Sitosterol/ β -sitosterol glucoside / dioscin/methyl protoprosapogenin A of dioscin /methyl protodioscin /protodioscin	WP	Colo-205/KB HA22T / Hep-2 GBM8401/ TSGH / H1477	494
<i>Solanum mammosum</i> L.	Solanaceae	Saponins	Fr.	HeLa cells	495
<i>Solanum nigrum</i> L.	Solanaceae	Steroidal glycoside/ galactopyranoside/ solamargine/solasonine	WP	(PC-12)10) and (HCT116) cells	496
<i>Solenostemma argel</i> Hayne	Asclepiadaceae	Stemmoside A/ stemmoside B/stemmin C	L	Anti-tumor/ anti-cancer	497
<i>Sophora japonica</i> L.	Fabaceae	Mannose-binding lectin(SFL)	Rh.	HeLa cells	498
<i>Sophora tomentosa</i> L.	Fabaceae	Stilbenes and flavonoids	R	Anti-cancer	499
<i>Spilanthes acmella</i> Murr.	Asteraceae	Vanillic acid/ trans-ferulic acid/trans-isoferulic acid/ coumarin/ β -sitostenone / stigmasterol/ trans-ferulic acid / trans-isoferulic acid	ND	Anti-cancer	500
<i>Stemona collinsae</i> Craib.	Stemonaceae	Dichloromethane–methanol (DCM-M, 1:1)95% ethanol and aqueous extracts	R	KB/MCF-7	501
<i>Stereospermum suaveolens</i> DC.	Bignoniaceae	Lapachol	R	Walker 256 carcinosarcoma	502
<i>Suregada multiflora</i> A. Juss.	Euphorbiaceae	Diterpene lactones/ suregadolides A/ B	Ba.	(NCI-H322M) (SW-620)/ CNS (U251)/ (MDA-MB-435)	503



<i>Sutherlandia frutescens</i> (L.) R.Br.	Fabaceae	Crude aqueous	WP	Cervical carcinoma and Chinese Hamster Ovary cells	504
<i>Symplocos racemosa</i> Roxb.	Symplocaceae	Butanolic extract	Ba.	Leukaemia/cervical cancer cell line	505
<i>Syringa petula</i> L.	Oleaceae	B-sitosterol/nortropin /eugenol / syringaresinol / oleoside 11-methyl ester	Bu.	A2780 human Ovarian cancer cell lines	506
<i>Tabebuia rosea</i> (Bertol.) DC.	Bignoniaceae	Alkaloids	L	Human leukemic cells (MOLT-4)	507
<i>Tabernaemontana catharinensis</i> (Engl.) Tiegh.	Apocynaceae	Indole alkaloids/ voacangine/ coronaridine	B L	UACC62/MCF7 NCI.460/OVCAR/ PC03/C786.0/ NCIADR	508
<i>Tabernaemontana elegans</i> ramlowii Hieron	Apocynaceae	Corynanthe/monoterpene/ indole alkaloid/ monoterpene indole /dregamin/ vobasine	L	Human hepatoma HuH-7 cells	509
<i>Taraxacum coreanum</i> Nakai	Asteraceae	Taraxinic acid	ND	HL-60 cells	510
<i>Taraxacum japonicum</i> Koidz	Asteraceae	Ethanolic extracts	R	B16 2F2	511
<i>Taraxacum officinale</i> agg	Asteraceae	Cold aqueous extracts	L, F, R	MCF-7/AZ / LNCaP/C4-2B	512
<i>Taxus brevifolia</i> Nutt.	Taxaceae	Paclitaxel	Ba.	Ovarian and breast adenocarcinoma	513
<i>Teucrium polium</i> L.	Lamiaceae	Ethanol extract	L	Skmel-3/Saos-2/ SW480/ MCF-7/ KB/ EJ/A431 cell lines	514
<i>Terminalia arjuna</i> (Roxb.) W. &A.	Combretaceae	Arjunin	L	Anti-cancer	515
<i>Terminalia brownii</i> Fresen	Combretaceae	Petroleum ether/ dichloromethane/ methanol	St. Ba. R, W	Anti-cancer	516
<i>Terminalia chebula</i> Retz.	Combretaceae	Casuarinin/ chebulanin/ chebulinic acid/1,6-di-O-galloyl-β-D-glucose	Fr.	Anti-cancer	517
<i>Terminalia paniculata</i> (Roxb.) W. & A.	Combretaceae	Doxorubicin	Ba.	Breast cancer/ small cell carcinoma of the lung/ acute leukemia's	518
<i>Thalictrum faberi</i> Ulbr.	Araceae	Phenolic aporphine-benzylisoquinoline alkaloids	R	LU-1/KB/KB-V (+VLB) LNCaP/ ZR-75-1	519
<i>Thespesia populnea</i> L.	Malvaceae	Sesquiterpenoids, named populene A-H (1-8)	W H.W	MCF-7/HeLa/ HT-29/ KB	520
<i>Thevetia peruviana</i> (Pers.) K. Schum.	Apocynaceae	Neriifolin (1),9 thevefolin	Ba.	Human gastric adeno-carcinoma (AGS) cell lines	521
<i>Thuja occidentalis</i> L.	Cupressaceae	Thujone/isothujone /fenchone sabines /-pinen/p-coumaric acid/Umbelliferone/ flavonoids/(Catechine, Gallocatechine)/tannic acid/ polysaccharide/ proteins	ND	Malignant melanoma cell line A375	522
<i>Tinospora cordifolia</i> (Willd.) Miers ex Hook. F. & Thoms.	Menispermaceae	Dichloromethane extract	ND	Ehrlich ascites carcinoma (EAC)	523
<i>Trachelospermum jasminoides</i> (Lindl.) Lem.	Apocynaceae	Lignins	St. L	Anti-cancer	524
<i>Trachyspermum ammi</i> Sprague	Apocynaceae	MeOH extract	L	Panc-1/MIA/ Capan-1/Hs68	525
<i>Tragia involucrata</i> L.	Euphorbiaceae	Hexane/dichloromethane/ toluene extracts	AP	MCF-7/KB/Vero cell lines	526
<i>Tribulus terrestris</i> L.	Zygophyllaceae	Terrestrinins A(1) / B(2)/ furostanol/giggenin/ hecogenin/ruscogenin/ gitogenin/ tigonenin	R Fr.	(ASC)/Bcap-37 b/ BEL- 7402/liver SK- MEL/ KB/ BT- 549/ SK- OV-3	527
<i>Trichosanthes cucumerina</i> L.	Cucurbitaceae	Cucurbitacin B	WP	(HBL-100)	528
<i>Trigonella foenum graecum</i> L.	Fabaceae	Alkaloids/phenolic compounds/ flavonoids/glycosides.	S L	Ehrlich Ascites Carcinoma	529
<i>Tripterygium regelii</i> Sprague & Takeda	Celastraceae	Celastrol	St. Ba.	Human breast adenocarcinoma MCF-7 cells.	530
<i>Tripterygium wilfordii</i> Hook f.	Celastraceae	Triptolide	R	UISO-BCA-1/ UISO-BCA-2 / UISO-LUC-1 cell lines SK-BR-3/ ZR-75-1/ HBL-100/ LNCaP/ P-388/KB-3 /KB-VI	531
<i>Tulbaghia violacea</i> Seren.	Apiaceae	Methanol extracts	L, Bu.	MCF-7/WCO3/ HT29 /HeLa	532
<i>Typhonium divaricatum</i> (L.) Decne	Araceae	Lectins	Tu.	Pro-01(prostate)/ Lu-04 (lung)/Bre-04 (breast)/HepG2 (liver)/Hela(cervix)	533
<i>Typhonium flagelliforme</i> (Lodd.) Blume	Araceae	Pheophorbide-a/ pheophorbide-a/ pyropheophorbide-a/ methyl pyropheophorbide-ahexadecanoic acid/ oleic acid/linoleic acid/ linolenic acid/ campesterol/ stigmasterol/beta-sitosterol	ND	Anti-cancer	534
<i>Uncaria tomentosa</i> (Willd.) DC	Rubiaceae	Aqueous extract	Ba. R	Anti-cancer	535



<i>Uncaria guianensis</i> (Aubl.) Gmel.	Rubiaceae	Aqueous extract	Ba. R	Anti-cancer	536
<i>Urtica dioica</i> L.	Urticaceae	β-sitosterol	R, L	Prostate cancer	537
<i>Vaccinium dunalianum</i> Wigh	Ericaceae	p-hydroxyphenyl 6-O-trans-caffeooyl-β-D-glucoside / p-hydroxyphenyl 6-O-trans-p-hydroxycoumaroyl-β-D-glucoside/ p-hydroxy benzoic acid /cafeic acid methyl ester /p-hydroxyl phenyl-β-D-glucoside/ cafeic acid	Bu.	A549 cancer cell line	538
<i>Vaccinium macrocarpon</i> Aiton	Ericaceae	Cis and trans isomers of 3-O-p-hydroxycinnamoyl/ursolic acid/Quercetin/ Phenylboronic acid	Fr.	MCF-7t/ME180/ PC3	539
<i>Vaccinium myrtillus</i> L.	Ericaceae	Pure delphinidin/malvidin	Be.	HL60/ HCT116 human cancer cell lines	540
<i>Vaccinium stamineum</i> L.	Ericaceae	Resveratrol/Cyanidin/ Peonidin/Quercetin/ kaempferol/ Caffeic acid/ P-coumaric acid	Fr.	HL-60 cells / cancer A549 cel	541
<i>Valeriana officinalis</i> L.	Valerianaceae	Clionasterol glycosides	ND	Anti-cancer / cytotoxic activity	542
<i>Valeriana sorbifolia</i> Kunth.	Valerianaceae	Valepotriates(sorbifolivatrates A – D (1–4)) / tisovaltrate / valtrate / seneciovaltrate/ valtrate hydrine B3 / altrate hydrine B7		Anti-cancer	543
<i>Ventilago madraspatana</i> Gaertn.	Rhamnaceae	Physcion/emodin	ND	Ehrlich ascites carcinoma / A375 Hep2/ U937	544
<i>Verbascum lasianthum</i> Boiss. ex Benthem	Scrophulariaceae	Rhamnopyranosylaucubin / sinuatol / aucubin/geniposidic acid / catalpol /ajugol/ ilwensisaponin A	F	Anti-cancer	545
<i>Verbascum pseudonobile</i> Stoj. & Stef.	Scrophulariaceae	MeOH extract	AP	SK-MEL/KB/ BT-549/SK-OV-3	546
<i>Verbascum pterocalycinum</i> var. mutense Hub-Mor	Scrophulariaceae	MeOH extract	AP	SK-MEL/ KB/ BT-549/SK-OV-3	547
<i>Verbascum sinaiticum</i> Benth.	Scrophulariaceae	Verbascoside / sinuatol / ajugol/ luteolin 7-O-β-D-glucoside / aucubine	L F	Anti-cancer	548
<i>Verbascum thapsus</i> L.	Scrophulariaceae	MeOH extract	AP	SK-MEL (malignant melanoma) KB (epidermoid carci-noma) BT-549 (ductal carcinoma) and SK-OV-3 (ovary carcinoma)	549
<i>Verbena hybrida</i> L.	Verbenaceae	Flavonol 3-O-glucoside/ malonyltransferases	F	Anti-cancer	550
<i>Vernonia amygdalina</i> Delile.	Asteraceae	Sesquiterpene lactones/edotides	L	Human Ductal Carcinoma cell line (BT-549)	551
<i>Vigna radiata</i> (L.) R. Wilczek.	Fabaceae	Latex	AP	Anti-cancer	552
<i>Vigna unguiculata</i> L.	Fabaceae	Gallic/ pro tocatechuic acid/ln cotyledons (p-hydroxybenzoic acid)	S	Hormone-dependent mammary (MCF-7) cancer cells	553
<i>Viola arvensis</i> Murr.	Violaceae	Varv A/ varv F/ cycloviolacin	ND	Ovarian carcinoma cells,ccrf-cem, nci-h69, rmpm-8226/ u-937gtb	554
<i>Viola biflora</i> L.	Violaceae	ND	St.Ba.	Lymphoma cell line	555
<i>Viola odorata</i> L.	Violaceae	Cycloviolacin O2 (CyO2), a cyclotide,novel cyclotides (psyle A, C and E)	AP	MCF-7 and its drug resistant subline MCF-7/ADR	556
<i>Viola tricolor</i> hortensis	Violaceae	Cyclotides (cytotoxic cyclotide vitri A.)		Human cancer cell lines/U-937 GTB (lymphoma) and RPMI-8226/s (myeloma)	557
<i>Viscum album</i> L.	Viscaceae	Abnoba/Helixor/Isorel/ Iscador/Iscucin/Eurixor/ Lectinol	WP	Gynaecological/ breast-cancer	558
<i>Viscum cruciatum</i> Sieber ex Boiss	Viscaceae	Diarylheptanoids/ Hirsutanone	AP	Melanoma (UACC-62)/renal (TK-10) and breast (MCF-7) cancer cell lines	559
<i>Vitex rotundifolia</i> L.f.	Verbenaceae	Luteolin	Fr.	Human myeloid leukaemia HL-60	560
<i>Vitex trifolia</i> L.	Verbenaceae	Hexanic extract	L	SQC-1 UISO/ OVCAR-5/HCT-15 COLADCAR/ KB	561
<i>Viticis fructus</i> P.E.	Verbenaceae	Casticin/3,6,7-trimethyl quercetagetrin/ vitexin/artemetin/5-methyl artemetin/7-desmethyl artemetin/ mluetolin/luteolin-3-O-b-D-glucuronide / isoorientin	L St.	Cervix carcinoma/ovarian cancer/colon/nasopharyngeal carcinoma	562
<i>Waltheria indica</i> L.	Malvaceae	Epicatechin/ quercetin/ tiliroside	WP	Anticanceric	563
<i>Wedelia calendulacea</i> Less. Bhangra	Asteraceae	Methanol extracts	WP	Ehrlich Ascites Carcinoma (EAC)in Swiss albino mice	564
<i>Wedelia chinensis</i> (Osbeck) Merr.	Asteraceae	Wedelolactone/ luteolin/apigenin	ND	LNCaP/PC-3/ 22Rv1 prostate cancer cell lines	565
<i>Weigela subsessilis</i> L.H.Bailey	Caprifoliaceae	Crosolic acid	L	SNU-601 human gastric cancer cells	566



<i>Withania somnifera</i> (Dunal)	Solanaceae	Withanolides / withaferin A / viscosalactone B	L	NCI-H460 (Lung)/ HCT-116 (Colon)/ SF-268 (Central Nervous System CNS) and MCF-7 (Breast) human tumor cell lines.	567
<i>Xanthium sibiricum</i> Patr. et Widd	Asteraceae	7,12-dimethylbenz[a]anthracene	R	Skin cancer in albino swiss mice	568
<i>Xanthium strumarium</i> L.	Asteraceae	Xanthatin/xanthinosin/ sesquiterpene lactones	WP	WiDr ATCC (colon)/ MDA-MB-231 ATCC (sein) et NCI-417 (poumon)	569
<i>Ximenia americana</i> L. var. <i>microphylla</i> Welw. ex Oliver	Olacaceae	Cisplatin/Gemcitabine/ Miltefosine	WP	AR230/BV173 (DSMZ), CML-T1/(DSMZ), K562 (DSMZ), LAMA84 (DSMZ), MDA-MB-231 (estrogen-receptor negative, ATCC)	570
<i>Xylopia aethiopica</i> (Dun) A. Rich	Annonaceae	Saponin/Anonecaine	Fr.	Anti-cancer	571
<i>Xylopia langsdorffiana</i> St. Hilaire & Tulasne	Annonaceae	Ent-atisane-7 α ,16 α -diol (xylodiol)	L	HL60 cells	572
<i>Xylopia sericea</i> St. Hil. Affini	Annonaceae	Diterpenoid kaurenoic acid	ND	Anti-cancer	573
<i>Yucca gloriosa</i> L.	Liliaceae	Furostanol saponins	Rh.	Anti-cancer	574
<i>Yucca schidigera</i> Roezl.	Liliaceae	Resveratrol/ yuccaols A/ C	Ba.	Anti-cancer	575
<i>Zanthoxylum americanum</i> (Mill)	Rutaceae	Pyranocoumarins/ alloxanthoxyletin/ xanthoxyletin/ xanthyletins/ esamin / asarinin/	L	Human leukaemia (HL-60) cells	576
<i>Zanthoxylum ailanthoides</i> Sieb. & Zucc.	Rutaceae	Pheophorbide-a methyl ester / pheophorbide-b methyl ester /	ND	(colo 205)/ (Hep G2)/(WEHI-3)/ (B16-F1)/ (A375 S2)/(HL-60) colo 205, WEHI-3/ HL-60	577
<i>Zanthoxylum madagascariense</i> Baker.	Rutaceae	Rutaceline	L	Human colorectal adenocarcinoma (Caco-2)/African green monkey kidney (Vero) cell lines.	578
<i>Zanthoxylum rhoifolium</i> Lam.	Rutaceae	α -humulene/ α -pinene / β -pinene (inactive)/ β -caryophyllene	ND	Ehrlich ascites tumor	579
<i>Zea mays</i> L.	Poaceae	Crude ethanolic extract	WP	Anti-cancer	580
<i>Zieridium pseudobitusifolium</i> (Guillaum.)	Rutaceae	Flavonols	NB	(KB) human nasopharyngeal carcinoma cells	581
<i>Zingiber zerumbet</i> Smith.	Zingiberaceae	Diethyl ether-95% EtOH	Fr.	P-388 cells	582
<i>Zizyphus jujuba</i> Mill.	Rhamnaceae	Triterpenoids/colubrinic acid/ alphitolic acid/ zizyberenolic acid	L	K562/B16(F-10)/ SK-MEL-2/PC-3/ LOX-IMVI/ A549 tumor cell line	583

CONCLUSION

Plants play an important and indispensable role in survival and livelihood of human beings. Besides providing numerous resources and acting as means of survival for our day to day life, immense utility and applications of plants is well-known since ancient times for treatment of various ailments/ diseases in humans as well as animals. Though the effect of balanced diet on cancer is still being researched; the direct use of plants to mitigate, prevent and cure cancer is clearly indicative. In the recent past, a large number of plant species have been identified as potential and possible anticancer agents that can be used for its treatment. Further research is required to convert this potential and promising role of plants in treating cancer into a viable form for devising treatment options with little or no side-effects. This database includes 576 plants describing their name, plant part used, active principle, families and various cell lines used in different studies. The list in this compilation opens many new avenues for biomedical researchers to possibly design a highly effective and low cost treatment for cancer.

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I would like to remember and thank my father Sardar Teja Singh, whom we lost to cancer. Every minute of my

research and every word in this paper describe the pain which I felt for him. I dedicate this paper to my loving dad. This is a token of my love for my dad.

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