

# Screening of plant collection of Cibodas Botanic Gardens, Indonesia with anticancer properties

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**Abstract.** Pratiwi RA, Nurlaeni Y. 2020. Screening of plant collection of Cibodas Botanic Gardens, Indonesia with anticancer properties. *Biodiversitas* 21: 5186-5229. Cancer is a life-threatening disease worldwide. One approach to developing effective treatment in fighting cancerous cells is to obtain anticancer drug candidates from natural resources, such as plants. This study aimed to inventory and categorize plant collections in Cibodas Botanic Gardens (CBG), West Java, Indonesia that has anticancer properties in a detailed and comprehensive manner. Literature research was conducted in international scientific databases using several keywords expressing anticancer properties to produce list of plant species potential for anticancer. The results of this research were then cross-checked with the plant collection database of CBG. List of plants exhibits anticancer activities were then categorized based on the IC<sub>50</sub> values (an indicator of cytotoxicity). Our result showed 291 species from 90 families of CBG plant collection harbor anticancer properties. Among them, 93, 100, 36, and 62 species have IC<sub>50</sub> values under Class I (strong), Class II (moderate), Class III (inactive), and Class IV (insufficient IC<sub>50</sub> data), respectively. The families with the highest number of potential anticancer plants are Lauraceae, Leguminosae, Meliaceae, Myrtaceae, Moraceae, Cupressaceae, Asparagaceae, Euphorbiaceae, Compositae, Clusiaceae, Lamiaceae, Apocynaceae, Adoxaceae, Amaryllidaceae, and Elaeocarpaceae. Species that have strong anticancer activities include *Acacia farnesiana*, *Aglaia edulis*, *A. elliptica*, *A. silvestris*, *Artocarpus elasticus*, *Bauhinia strychnifolia*, *Buxus microphylla*, *Calophyllum soulattri*, *Cerbera manghas*, *Cocculus orbiculatus*, *Cryptocarya chinensis*, *C. konishii*, *C. laevigata*, *Dalbergia parviflora*, *Diospyros discolor*, *Erythrina abyssinica*, *Etlingera elatior*, *Ficus fistulosa*, *Garcinia x mangostana*, *Hemerocallis fulva*, *Jatropha gossypifolia*, *Panax ginseng*, *Podocarpus macrophyllus*, *Psidium cattleianum*, *Sansevieria ehrenbergii*, *Tacca chantrieri*, *Toona sinensis*, *Viburnum odoratissimum*, and *V. Sambucinum*. Even *Serenoa repens* and *Taxus sumatrana* contain active compounds that have been commercialized as anticancer drugs. The data resulted from this study can serve as baseline information for further research in drug discovery and development for anticancer treatments using living plant specimens collected in CBG. CBG has a great prospect of medicinal plants that require further studies for formulating anticancer drug as an alternative natural resource.

**Keywords:** Anticancer property, Cibodas Botanic Gardens, inhibitory concentration, plant metabolite secondary

## INTRODUCTION

Cancer is the second leading cause of mortality globally after cardiovascular diseases. The International Agency for Research on Cancer (IARC) (2018) estimated the global cancer burden has risen to 18.1 million new cases and 9.6 million deaths in 2018. Indonesian Ministry of Health research data (Riskesdas) (2018) shows that the prevalence of cancer in Indonesia has increased from 1.4 to 1.8 cases per thousand of population in 2015 and 2018. By 2030, it is projected that there will be 26 million new cancer cases with 17 million deaths per year (Thun et al. 2010).

Considering cancer as a life-threatening disease worldwide, there is a continuing demand for developing treatments that are effective in fighting cancerous cells with less harmful than existing therapies. Solid tumors can be removed surgically, or by radiation treatment and chemotherapy that painful and induce toxic effects to patients. Drugs can be used as treatment for certain types of cancer, such as biological drugs, Herceptin, against breast cancer. However, the drug is very costly while the effectiveness is limited to certain kinds of tumors. Furthermore, it was found in many cases that the tumor can

develop resistance to various drugs. Covering the problems, one approach is to obtain the anticancer drug candidates from secondary metabolite of natural resources, such as plants (Fridlender et al. 2015).

Utilizing plant as new drug resources in cancer treatment provides many advantages, including it is more cost-effective than developing synthetic compounds, faster discovery of new drugs, offering a holistic approach that complements the “silver bullets” of modern drug, and synergistic effects between the various compounds of the herbs give promising better healing effects overall (Fridlender et al. 2015). The natural products are also expected to build co-evolution against cancer cells so that the incidence of cancer drug resistance is expected to be minimal (Wang et al. 2015).

More than 3000 species of plant over the world have been reported to have anticancer properties (Solowey et al. 2014). The promising sources of anticancer properties from plants belong to various groups of compound, such as alkaloids, diterpenes, diterpenoquinone, purine-based compounds, lactonic sesquiterpene, peptides, cyclic depsipeptide, proteins, macrocyclic polyethers, and so on (Lichota et al. 2018). In searching for anticancer properties

in plant, there is a long journey involving several steps that generally need to go through. Initially, plant-derived substances are discovered by botanists or ethnobotanists, ethnopharmacologists, or plant ecologists. Then, phytochemists identify the potential therapeutic activities through the isolation of active compounds and biological screening assays. Finally, the mode of action and relevant molecular targets are proven through molecular biology research (Lichota et al. 2018).

A complex set of ethnobotanical methods such as initial investigations, sample collections, and detailed records of the use a society makes of plants has been the starting point for many successful novel drug discovery projects. Ethnobotanists make information about this local knowledge and cultural practices available to bioscientists. The discovery of the proven anticancer drug Vincristine is an interesting history to reflect on it. *Catharanthus roseus* or known as Madagascar periwinkle has, since a long time ago, been used to treat various diseases traditionally, from minor symptoms such as headache to diabetes remedy. In 1960, Robert Noble and Charles Beer have isolated alkaloid vincristine from these ornamental plants. Further assay revealed that these ayurvedic plants exhibit a cytotoxic effect by microtubule dynamic inhibition, causing the mitotic spindle damage. Consequently, it inhibits mitosis and leading cancer cells to apoptosis (Lichota et al. 2018).

Cibodas Botanic Gardens (CBG) located in West Java has plant collection of 237 families, consisting of 949 genera, 1978 species, and 11428 plant living specimens (Registration and Collection Unit of CBG 2020; unpublished data). Such species have the potentials to be developed for various uses, such as fruit crops (Normasiwi and Surya 2016), sources of timber (Wahyuni et al. 2008), exudates (Muhaimin and Nurlaeni 2018), natural dyes (Efendi et al. 2017), ornamental plants (Putri et al. 2019, unpublished data), and medicinal plants (Nikmatullah et al. 2019). Several medicinal plants are known to have potential properties as anticancer drug, including *Taxus sumatrana* which contains paclitaxel (Muhaimin 2016); *Mentha x piperita* and *Rothea serrata* (Lamiaceae) (Handayani 2015); *Frullania* sp., *Heteroscyphus argutus*, *Pogonatum cirratum*, and *Marchantia paleacea* (Bryophyte) (Nadhifah et al. 2018); *Alnus japonica*, *Garcinia parviflora*, *Gnetum gnemonoides*, *Mangifera laurina*, *Syzygium cf. discophorum*, and *Talinum paniculatum* from Medicinal Thematic Garden (Nikmatullah et al. 2019). However, until 2019 there has been no comprehensive exploration of the CBG collection that demonstrates anticancer properties.

This research was conducted to inventory and categorize plant collections in CBG that harbor anticancer properties in a detailed and comprehensive manner. The data resulted from this study is expected to serve as baseline information for further research to assess plant secondary metabolites for anticancer treatments, including phytochemical profiling and extraction method, *in vitro* assay to cancer cell models, *in vivo* assay to animal models, *in silico* assay as treatment simulation, or plant tissue culture for anticancer metabolite production.

## MATERIALS AND METHODS

### Study area

This research conducted in Cibodas Botanic Gardens (CBG) located at Cianjur District, West Java, Indonesia. CBG is a botanical garden managed by the Indonesian Institute of Sciences (LIPI). Besides having an *ex-situ* conservation role, CBG also has the function of research and utilization of tropical floras, especially wet plateau plants. Data investigation regarding the potential of plants cytotoxicity against cancer was carried out through online reference searches.

### Procedures

In order to collect information about plant cytotoxicity against cancer, we used keywords: “plant cytotoxicity”, “herbs for cancer”, “phytotoxicity”, “plant-derived chemoprevention”, “medicinal plant for cancer”, “anticancer natural drug”, “plants secondary metabolite for anticancer”, “plants with anticancer property”, and “IC<sub>50</sub> of plant metabolite” in international databases, such as ScienceDirect, PubMed, and Scopus, and database of natural products and fractional extracts for cancer treatment that has been established by previous researchers, such as NPACT (Mangal et al. 2013) and NPCARE (Choi et al. 2017). Searches were limited to articles in English and Indonesian language with the research interval period from 1990 to 2020. The scientific name of the plant species mentioned in the references was recorded and verified for their existence in the CBG through the garden collection data. The compilation of plant database of CBG with anticancer properties was developed by completing the following data: family of plant, scientific name of plant species, vernacular name, cancer cell line, extraction method, IC<sub>50</sub>, reference, anticancer activity category, plant origin, conservation status, and locality at CBG. IC<sub>50</sub> (50-percent Inhibitory Concentration) selected as the cytotoxic parameter in *in vitro* assay; as the initial procedure for screening anticancer drug candidates.

### Data analysis

Potential anticancer plants were classified into four categories based on National Cancer Institute guidelines: Class I for plants with strong activity against cancer cell line, Class II for moderate activity, Class III for inactive and Class IV for plants with insufficient IC<sub>50</sub> data but mentioned has anticancer compound in literature (Jabit et al. 2009, Alabsi et al. 2016). Class I was divided into four subclasses to observe the selectivity index: I.A for plants that their pure extract (sub-fraction method) have IC<sub>50</sub> ≤ 4 µg/ml against at least three cancer line cells, I.B for pure extracts that have IC<sub>50</sub> ≤ 4 µg/ml against one or two cancer line cell(s), I.C for plants that their crude extract has IC<sub>50</sub> ≤ 10 µg/ml against at least three cancer line cells, and I.D for crude extracts that have IC<sub>50</sub> ≤ 10 µg/ml against one or two cancer line cell(s). Then, Class II is for plants that pure or crude extract that has 10 > IC<sub>50</sub> > 100 µg/ml and class III for IC<sub>50</sub> ≥ 100 µg/ml. Plant species belonged to Class I.A and not listed as threatened species according to The IUCN

Red List of Threatened Species™ assessment were recommended for further studies.

## RESULTS AND DISCUSSION

### Family distribution of plant with anticancer properties

We found 90 families that consisted of 291 species of the collection of CBG that have anticancer properties according to the literature research we conducted (for detailed information, see Table 3 in appendix section). The families with the largest number of species are as follows: Lauraceae (21 species), Leguminosae (20 species), Meliaceae (17 species), Myrtaceae (13 species), Moraceae (13 species), Cupressaceae (11 species), Asparagaceae (10 species), Euphorbiaceae (10 species), Compositae (9 species), Clusiaceae (8 species), Lamiaceae (8 species), Apocynaceae (7 species), Adoxaceae (6 species), Amaryllidaceae (6 species), and Elaeocarpaceae (6 species). The other 75 families consisted of less than five species of plant per family. The distribution of plant families that have anticancer properties from CBG is shown in Figure 1.

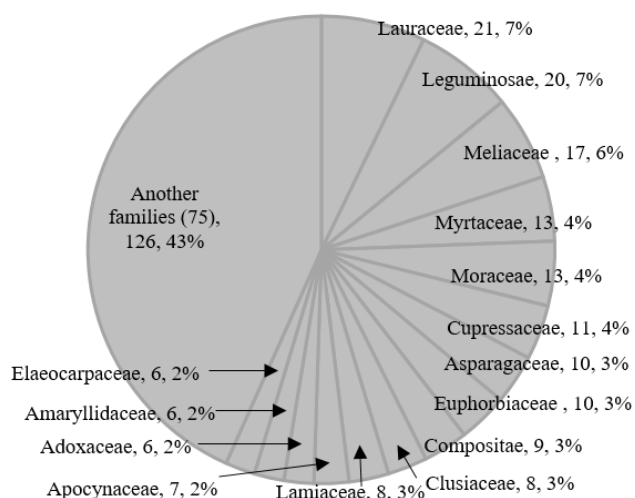
### Plant categories based on their cytotoxicity activities (IC<sub>50</sub>)

Our result showed that based on cytotoxic activities (IC<sub>50</sub>), plants belonged to Class of I, II, III, and IV consisted of 93, 100, 36, and 62 species, respectively, or 32%, 34%, 13%, and 21% in percentage, respectively. Class I is divided into four subclasses: 30 species as I.A, 27 species as I.B, 12 species as I.C, and 24 species as I.D. The categories of plants based on their cytotoxicity against cancer cells are displayed in Figure 2 and the species are listed in Table 1.

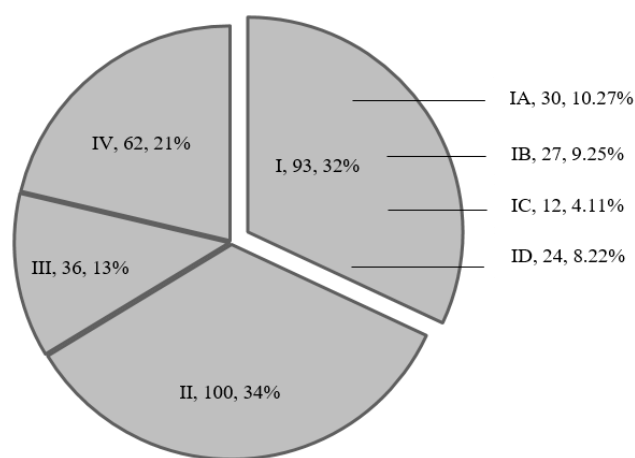
## Discussion

Among plant collection in Cibodas Botanic Garden, Lauraceae is the family consisting of the largest number of species with anticancer potential resources, dominated by the genus *Cinnamomum*, i.e. *C. burmanii*, *C. camphora*, *C. cassia*, *C. iners*, *C. subavenium*, and *C. zeylanicum*; *Cryptocarya*, including *C. chinensis*, *C. costata*, *C. crassinervia*, *C. konishii*, *C. laevigata*, and *C. strictifolia*; and *Litsea*, including *L. cubeba*, *L. elliptica*, *L. garciae*, *L. mappacea*, and *L. monopetala*. Actually, CBG still has another species of *Cinnamomum* collections (i.e. *C. sintok*, *C. heyneanum*, *C. culitlawan*, *C. rhynchophyllum*, *C. javanicum*, *C. porrectum*, and *C. eymae*); *Cryptocarya* (*C. affinis*, *C. ferea*, *C. densilora*, *C. gigantocarpa*, and *C. vulgaris*); and *Litsea* (*L. ferruginea*, *L. lanceolata*, *L. grandis*, *L. javanica*, *L. tomentosa*, *L. cassiaefolia*, *L. firma*, *L. oppositifolia*, *L. noronhae*, *L. umbellata*, *L. deccanensis*, *L. insignis*, *L. grisea*, *L. castanea*, *L. accendetoides*, *L. deccanensis*, *L. leefeana*, *L. ochraceae*, and *L. diversifolia*).

Considering seven species of *Cinnamomum*, six species of *Cryptocarya*, and five species of *Litsea* have the potency as anticancer with strong and moderate categories, it is possible that other species within these families have similar properties. However, there are no references yet that tested the anticancer potency from these species. Shen et al. (2014) stated that Lauraceae is a potential resource for nontoxic compounds that activate the nuclear factor erythroid 2-related factor 2/antioxidant response element (Nrf2/ARE) pathway. Nrf2 plays a key role in binding with ARE sequences then activates the transcription of many cytoprotective genes. Nrf2/ARE pathway induction has been recognized as strategy for blocking or slowing cancer premalignant tumors, so-called chemoprevention as defense mechanism (Shen et al. 2014).



**Figure 1.** The distribution of plant families that have anticancer properties from CBG collection



**Figure 2.** Plant categories based on their IC<sub>50</sub>

**Table 1.** Plant categories based on their cytotoxicity activities (IC<sub>50</sub>)

Plant categories			
I	II	III	IV
<b>I.A</b>	<i>Acalypha wilkesiana</i>	<i>Acacia caffra</i>	<i>Acalypha hispida</i>
<i>Acacia farnesiana</i>	<i>Achillea millefolium</i>	<i>Acanthus montanus</i>	<i>Achillea ptarmica</i>
<i>Aglaia edulis</i>	<i>Acorus calamus</i>	<i>Ardisia crenata</i>	<i>Agapanthus africanus</i>
<i>Aglaia elliptica</i>	<i>Aglaia angustifolia</i>	<i>Areca vestiaria</i>	<i>Agave attenuata</i>
<i>Aglaia silvestris</i>	<i>Aglaia eximia</i>	<i>Asclepias curassavica</i>	<i>Aglaia lawii</i>
<i>Artocarpus elasticus</i>	<i>Aglaia odorata</i>	<i>Bauhinia variegata</i>	<i>Aglaia odoratissima</i>
<i>Bauhinia strychnifolia</i>	<i>Alangium chinense</i>	<i>Bixa orellana</i>	<i>Aglaia tomentosa</i>
<i>Buxus microphylla</i>	<i>Alnus japonica</i>	<i>Cratogeomys formosum</i>	<i>Alangium javanicum</i>
<i>Calophyllum soulattri</i>	<i>Aloe ferox</i>	<i>Cupressus sempervirens</i>	<i>Aleurites moluccanus</i>
<i>Cerbera manghas</i>	<i>Aloe vera</i>	<i>Decaspermum fruticosum</i>	<i>Aloe arborescens</i>
<i>Cocculus orbiculatus</i>	<i>Alstonia angustifolia</i>	<i>Dracaena draco</i>	<i>Aristolochia trilobata</i>
<i>Cryptocarya chinensis</i>	<i>Ardisia crispa</i>	<i>Elaeocarpus glaber</i>	<i>Bauhinia integrifolia</i>
<i>Cryptocarya konishii</i>	<i>Artocarpus altilis</i>	<i>Embelia ribes</i>	<i>Capsicum annuum</i>
<i>Cryptocarya laevigata</i>	<i>Artocarpus heterophyllus</i>	<i>Ficus benjamina</i>	<i>Cibotium barometz</i>
<i>Dalbergia parviflora</i>	<i>Blechnum orientale</i>	<i>Ficus hirta</i>	<i>Coccoloba uvifera</i>
<i>Diospyros discolor</i>	<i>Buddleja davidii</i>	<i>Ichnocarpus frutescens</i>	<i>Coffea canephora</i>
<i>Erythrina abyssinica</i>	<i>Buxus papillosa</i>	<i>Leea indica</i>	<i>Crinum abyssinicum</i>
<i>Etilingera elatior</i>	<i>Caesalpinia gilliesii</i>	<i>Litsea mappacea</i>	<i>Cryptocarya strictifolia</i>
<i>Ficus fistulosa</i>	<i>Caesalpinia spinosa</i>	<i>Mahonia fortunei</i>	<i>Cyperus alternifolius</i>
<i>Garcinia x mangostana</i>	<i>Camellia sinensis</i>	<i>Morus nigra</i>	<i>Dillenia serrata</i>
<i>Gmelina arborea</i>	<i>Catha edulis</i>	<i>Myrica esculenta</i>	<i>Diospyros celebica</i>
<i>Hemerocallis fulva</i>	<i>Centella asiatica</i>	<i>Oroxylum indicum</i>	<i>Elaeocarpus densiflorus</i>
<i>Jatropha gossypifolia</i>	<i>Cestrum nocturnum</i>	<i>Passiflora suberosa</i>	<i>Elaeocarpus petiolatus</i>
<i>Panax ginseng</i>	<i>Cheilocostus speciosus</i>	<i>Phaleria macrocarpa</i>	<i>Elaeocarpus serratus</i>
<i>Podocarpus macrophyllus</i>	<i>Chisocheton lasiocarpus</i>	<i>Pinus merkusii</i>	<i>Elaeocarpus sylvestris</i>
<i>Psidium cattleianum</i>	<i>Cinnamomum camphora</i>	<i>Pinus yunnanensis</i>	<i>Equisetum ramosissimum</i>
<i>Sansevieria ehrenbergii</i>	<i>Cinnamomum iners</i>	<i>Polyalthia subcordata</i>	<i>Eucalyptus globulus</i>
<i>Tacca chantrieri</i>	<i>Cinnamomum burmanni</i>	<i>Rhodamnia cinerea</i>	<i>Eucomis comosa</i>
<i>Toona sinensis</i>	<i>Cinnamomum zeylanicum</i>	<i>Rothea serrata</i>	<i>Euphorbia milii</i>
<i>Viburnum odoratissimum</i>	<i>Citrus medica</i>	<i>Strobilanthes cernua</i>	<i>Ficus religiosa</i>
<i>Viburnum sambucinum</i>	<i>Clerodendrum trichotomum</i>	<i>Syzygium polyanthum</i>	<i>Flemingia macrophylla</i>
<b>I.B</b>	<i>Colletia paradoxa</i>	<i>Taraxacum campylodes</i>	<i>Garcinia dioica</i>
<i>Acacia tenuifolia</i>	<i>Crinum × powellii</i>	<i>Toona ciliata</i>	<i>Garcinia latissima</i>
<i>Aglaia argentea</i>	<i>Cryptocarya crassinervia</i>	<i>Uvaria grandiflora</i>	<i>Gerbera jamesonii</i>
<i>Aglaia forbesii</i>	<i>Cupressus lusitanica</i>	<i>Viburnum cylindricum</i>	<i>Hemerocallis minor</i>
<i>Artocarpus lanceifolius</i>	<i>Derris elliptica</i>	<i>Yucca gloriosa</i>	<i>Hymenocallis speciosa</i>
<i>Camptotecha acuminata</i>	<i>Dioscorea bulbifera</i>		<i>Iris pseudacorus</i>
<i>Cananga odorata</i>	<i>Diospyros kaki</i>		<i>Juniperus procumbens</i>
<i>Chisocheton patens</i>	<i>Dodonaea viscosa</i>		<i>Leonurus cardiaca</i>
<i>Cinnamomum cassia</i>	<i>Eclipta prostrata</i>		<i>Lindera polyantha</i>
<i>Cinnamomum subavenium</i>	<i>Elaeocarpus reticulatus</i>		<i>Litsea elliptica</i>
<i>Cinnamomum verum</i>	<i>Erythrina crista-galli</i>		<i>Litsea monopetala</i>
<i>Clausena excavata</i>	<i>Erythrina fusca</i>		<i>Macaranga triloba</i>
<i>Cryptocarya costata</i>	<i>Eucalyptus microcorys</i>		<i>Mentha canadensis</i>
<i>Cryptomeria japonica</i>	<i>Eucalyptus robusta</i>		<i>Opuntia robusta</i>
<i>Dichroa febrifuga</i>	<i>Eugenia uniflora</i>		<i>Phyllostachys edulis</i>
<i>Eriobotrya japonica</i>	<i>Ficus deltoidea</i>		<i>Pinus parviflora</i>
<i>Euphorbia pulcherrima</i>	<i>Ficus drupacea</i>		<i>Pterocarpus indicus</i>
<i>Garcinia lateriflora</i>	<i>Garcinia celebica</i>		<i>Pterocarya stenoptera</i>
<i>Hernandia nymphaeifolia</i>	<i>Garcinia rostrata</i>		<i>Quercus acuta</i>
<i>Hibiscus syriacus</i>	<i>Gardenia jasminoides</i>		<i>Salvia splendens</i>
<i>Hypericum uralum</i>	<i>Gleditsia sinensis</i>		<i>Sambucus javanica</i>
<i>Macaranga tanarius</i>	<i>Glochidion eriocarpum</i>		<i>Sanguisorba minor</i>
<i>Morus alba</i>	<i>Gnetum gnemon</i>		<i>Shorea platyclados</i>
<i>Ochrosia elliptica</i>	<i>Hedychium coronarium</i>		<i>Sophora tetraptera</i>
<i>Olea europea</i>	<i>Hibiscus rosa-sinensis</i>		<i>Stephania hernandiifolia</i>
<i>Pityrogramma calomelanos</i>	<i>Hypericum oblongifolium</i>		<i>Styrax benzoin</i>
<i>Taxus sumatrana</i>	<i>Iris halophila</i>		<i>Ternstroemia gymnanthera</i>
<i>Ziziphus jujuba</i>	<i>Juniperus chinensis</i>		<i>Thuja standishii</i>
<b>I.C</b>	<i>Kalanchoe beharensis</i>		<i>Viburnum suspensum</i>
<i>Alstonia scholaris</i>	<i>Lantana camara</i>		<i>Yucca glauca</i>
<i>Crinum zeylanicum</i>	<i>Laurus nobilis</i>		<i>Ziziphus oenopolia</i>
<i>Dillenia philippinensis</i>	<i>Liquidambar formosana</i>		

<i>Enterolobium contortisiliquum</i>	<i>Litsea cubeba</i>
<i>Glochidion zeylanicum</i>	<i>Litsea garciae</i>
<i>Goniothalamus macrophyllus</i>	<i>Macaranga rhizinoides</i>
<i>Hamelia patens</i>	<i>Marantodes pumilum</i>
<i>Juniperus virginiana</i>	<i>Mentha x piperita</i>
<i>Melastoma malabathricum</i>	<i>Murraya paniculata</i>
<i>Piper aduncum</i>	<i>Musa acuminata</i>
<i>Symplocos cochinchinensis</i>	<i>Myrica rubra</i>
<i>Tabebuia hypoleuca</i>	<i>Opuntia microdasys</i>
<b>I.D</b>	<i>Persea americana</i>
<i>Agave americana</i>	<i>Phyllanthus emblica</i>
<i>Agave salmiana</i>	<i>Phyllostachys nigra</i>
<i>Caesalpinia sappan</i>	<i>Pinus kesiya</i>
<i>Callistemon citrinus</i>	<i>Pistacia chinensis</i>
<i>Coix lacryma-jobi</i>	<i>Plantago lanceolata</i>
<i>Cola acuminata</i>	<i>Platycladus orientalis</i>
<i>Cola nitida</i>	<i>Polyalthia rumphii</i>
<i>Crinum macowanii</i>	<i>Psidium guajava</i>
<i>Croton argyratus</i>	<i>Salvia farinacea</i>
<i>Diplazium esculentum</i>	<i>Sambucus nigra</i>
<i>Eucomis autumnalis</i>	<i>Sandoricum koetjape</i>
<i>Ficus septica</i>	<i>Sarcandra glabra</i>
<i>Flacourtia rukam</i>	<i>Shorea javanica</i>
<i>Garcinia dulcis</i>	<i>Smallanthus sonchifolius</i>
<i>Juniperus procera</i>	<i>Smilax zeylanica</i>
<i>Lobelia laxiflora</i>	<i>Sophora tomentosa</i>
<i>Melaleuca alternifolia</i>	<i>Syzygium cumini</i>
<i>Schima wallichii</i>	<i>Syzygium jambos</i>
<i>Schinus terebinthifolia</i>	<i>Tecoma stans</i>
<i>Schinus weinmannifolius</i>	<i>Terminalia calamansanay</i>
<i>Serenoa repens</i>	<i>Thuja occidentalis</i>
<i>Tabernaemontana macrocarpa</i>	<i>Toona sureni</i>
<i>Thujopsis dolabrata</i>	<i>Vaccinium varingiaefolium</i>
<i>Tithonia diversifolia</i>	<i>Vernonia amygdalina</i>
	<i>Vernonia arborea</i>
	<i>Viola odorata</i>
	<i>Yucca aloifolia</i>

Note: Class I for plants with strong activity against cancer cell line, Class II for moderate activity, Class III for inactive and Class IV for plants with insufficient IC<sub>50</sub> data but mentioned has anticancer compound in literature (Jabit et al. 2009, Alabsi et al. 2016)

From Leguminosae family, several genera that have anticancer properties include *Acacia*, *Bauhinia*, *Caesalpinia*, *Dalbergia*, *Derris*, *Enterolobium*, *Erythrina*, *Flemingia*, *Gleditsia*, *Pterocarpus*, and *Sophora*. Meliaceae has *Aglaia*, *Chisocheton*, *Sandoricum*, and *Toona*. Even there are eleven species of *Aglaia* plant with anticancer properties, making it the genus with the largest number of species compared to the others. Several major families and other dominant genera are Myrtaceae (*Callistemon*, *Eucalyptus*, *Eugenia*, *Decaspermum*, *Melaleuca*, *Psidium*, *Rhodamnia*, and *Syzygium*); Moraceae (*Artocarpus*, *Ficus*, and *Morus*), Cupressaceae (*Cryptomeria*, *Cupressus*, *Juniperus*, *Platycladus*, *Thuja*, and *Thujopsis*); Asparagaceae (*Agave*, *Dracaena*, *Eucomis*, *Sansevieria*, and *Yucca*); and Euphorbiaceae (*Euphorbia*, *Acalypha*, *Aleurites*, *Croton*, *Jatropha*, and *Macaranga*). Several species of *Ficus* from Gunung Gede Pangrango National Park, which is located near CBG, have been observed as anticancer sources, such as *F. laevigata*, *F. lepicarpa*, *F. obscura*, *F. ribes*, and *F. variegata* (Arbiastutie et al. 2017).

The majority of plants with anticancer potentials in CBG were classified as having strong and moderate

cytotoxic activities (Class I and II), with proportion of 32% and 34%, respectively. Even paclitaxel from *Taxus sumatrana* is already at the commercialization stage, sold under the brand name Taxol® since 1993 (Seca et al. 2017) and the extract from *Serenoa repens* has been formulated as Permixon®, a commercial drug for benign prostatic hyperplasia (BPH) treatment (Habib et al. 2005; Zhou et al. 2015). Our findings suggest that plant collection in CBG has a great potential to be further explored for natural-based drug discovery and development, particularly for anticancer. This is in line with the history of early development of CBG which was aimed for the domestication of medicinal plants, most notably was quinine. Similar to botanical gardens in the world, such as Kew, Singapore, Peradeniya, Calcutta, and Sidney, their initial development was driven by the goal of domestication of industrial and medicinal plants such as rubber, tea, coffee, and quinine (Smith 2019).

The listed species in this study have a history of successful isolation of pure active compounds with strong activity against more than three model cancer cell lines (Class I.A) which are dominated by *Aglaia*, *Cryptocarya*, and *Viburnum*. The active rocaglaol compound isolated

from various *Aglaia* was known to produce very high cytotoxicity compared to the positive control paclitaxel and camptothecin (Huspa 2009). *Cryptocarya sinensis* not only actively inhibits cancer cells but also the active compound dehydrophenanthroindolizidine contains a significant anti-HIV activity (T.S. Wu et al. 2012). *C. laevigata* contains the active compound (-) - neocaryachine which is also toxic to multidrug-resistant sublines through the double-strand breaks DNA induction mechanism (Suzuki et al. 2018).

Several plant secondary metabolites that have been widely studied as anticancer compounds include vincristine, viscotoxin, paclitaxel, camptothecin, combrestatin, podophyllotoxin, geniposide, colchicine, artesunate, homoharringtonine, salvicine, ellipticine, roscovitine, maytanserin, thapsigargin, bruceantin, flavonols, crocetin, gingerol, lycopene, and ingenol mebutate (Seca et al. 2017; Iqbal et al. 2017; Lichota et al. 2018). Plants in CBG that contain these compounds include *Taxus sumatrana* (paclitaxel), *Camptotecha acuminata* (camptothecin), *Juniperus procumbens* and *Hernandia nymphaeifolia* (podophyllotoxin), *Gardenia jasminoides* (geniposide or genipin), *Buddleja davidii* (colchicine), *Salvia* (salvicine), *Ochrosia elliptica* (ellipticine), *Dillenia serrata*, *Acacia farnesiana*, and *Eriobotrya japonica* (betulinic acid), *Capsicum annuum* (capsaicin), *Thuja occidentalis* (flavonol), and *Euphorbiaceae* (ingenol mebutate). *Combretum* sp. at CBG as a potential source of combretastatin, is not included yet in the database because it is not completely taxonomically identified, while *Artemisia annua* (artesanate) is not yet a CBG collection despite the related research was initiated at CBG's Medicinal Thematic Garden (unpublished data). In CBG, there are several *Berberis* species, however, there has been no research on the berberine content which has the potential as an anticancer. Unfortunately, there is no *Catharanthus roseus* (formerly *Vinca rosea*) that its vincristine isolate is approved for clinical purposes as cancer treatment, *Viscum album* (source of viscotoxin), *Cephalotaxus* (homoharringtonine), *Raphanus sativus* (roscovitine), *Maytenus serrata* (maytanserin), *Thapsia garganica* (thapsigargin), *Brucea antidysenterica* or *B. javanica* (bruceantin), *Crocus sativus* or known as saffron (crocetin), *Zingiber officinale* (gingerol) but another *Zingiber* was found at CBG; tomatoes, watermelons, and red carrots (lycopene). It could be a suggestion for CBG to collect these plants.

Some plants of CBG collection contain anticancer compounds, however, the extracts of these plants have not been tested against cancer line. These plants include *Viburnum suspensum* (contains vibsanin), *Agapanthus africanus* (isoliquiritigenin), *Hymenocallis speciosa* (narciclasine (lycoricidinol) and pancratistatin), *Aristolochia trilobata* (lusicininal and rubraxanthone), *Garcinia latissima* (kaemferol), *Achillea ptarmica* (pellitorine), *Alangium javanicum* (javanicides and alangicides), *Dillenia serrata* (koetjapic acid and betulinic acid), *Shorea platyclados* (resveratrol), *Diospyros celebica* (plumbagin), *Elaeocarpus petiolatus* (cucurbitacin), *E. serratus* (farnesol), *E. sylvestris* (brevifolin), *Quercus acuta* (chlorogenic acid), *Pterocarya stenoptera*

(pterocarmin A), *Mentha canadensis* (rosmarinic acid and catechin), *Salvia splendens* (quercetin), *Phyllostachys edulis* (tricin and 7-O-methyl-tricin), *Ziziphus oenopolia* (betulinic acid), *Coffea canephora* (kahweol, cafestol, 16-O-methylcafestol), and *Aloe ferox* (aloe emodine, emodine, aloin). It is therefore suggested to further exploration of their anticancer activities..

Nature supply a huge number of compounds that provide new hope for medical uses, including cancer treatment. The trade-in plant-derived drugs generates astonishing economic value, which is estimated of US \$ 100 billion at current state and still grows to US \$ 5 trillion by 2050 (Greenwell et al. 2015). However, the availability of anticancer compounds in nature is limited and technically difficult to be isolated, makes it difficult to meet the demand of pharmaceutical industries. The solubility of natural anticancer compounds, such as paclitaxel and curcumin, is also low, makes it impractical for human cells to absorb. In the use of natural materials to become effective anticancer compounds, it is necessary to modify, formulate and manufacture semisynthetic or synthetic analogs, as well as a tissue culture approach for the massive production of secondary metabolites (Fridlender et al. 2015). Thanks to the advances in plant biotechnology, pharmacology, as well as nanotechnology that makes natural resource research for medicinal sources accelerating (Seca et al. 2017).

On the other hand, the exploitation of plant-derived drugs risks their existence in the wild in the long term, therefore proper management conservation strategies to fulfill demand for medicinal plants with the assurance of their sustainability becomes necessity (Seca et al. 2017). For example, *Taxus sumatrana*, *Shorea javanica*, *Shorea platyclados*, and *Pterocarpus indicus* are classified as endangered (EN) category of IUCN Red List. *Dracaena draco*, *Kalanchoe beharensis*, *Diospyros celebica*, *Aglaia angustifolia*, and *Pinus merkusii* are categorized as vulnerable (VU). Whereas *T. sumatrana* is a strong category of anticancer sources, *A. angustifolia*, *K. beharensis*, and *S. javanica* have moderate anticancer properties. Instead of encouraging the massive utilization of them, better to find other resources because there are still many species listed here with strong anticancer potency but excluded from threatened plants.

It should be remembered that the development of natural-based anticancer drugs is a long, complicated, expensive, and uncertain process to be successful. The development of an anticancer drug is started from *in vitro*, *in vivo*, to clinical testing and it takes a long time. It is clear that *in vitro* testing is a preliminary stage only with all its limitations.. However, there is no clinical trial without going through the preliminary testing stages. This study is limited by the categorization based on cytotoxicity to particular cancer cell lines, no discussed selectivity index among cell lines. Therefore we require further investigation to compare its activity in normal cells as an important aspect to be considered in drug formulation.

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**Table 3.** List of CBG plants collection with anticancer properties

Family	Species	Common name	Cell line	Extraction method	IC <sub>50</sub> (µg/ml)	Reference	Anticancer activity category*	Origin	Cons. status	Location in CBG
Acanthaceae	<i>Acanthus montanus</i> (Nees) T.Anderson	Daruju	BT-549 BT-20 PC-3	Crude	>200 >200 >200	(Fadeyi et al. 2013)	III	Trop. Africa	LC (Ghogu, 2010)	I.D.34; I.F.12.
Acanthaceae	<i>Strobilanthes cernua</i> Blume	Bubukuan kembang bidas	HeLa	Crude	968.26	(Arbiastutie 2017)	III	W. Java	N/A	V.A.77-77A; VII.B.171.
Acoraceae	<i>Acorus calamus</i> L.	Jeringau	MDA-MB-435S Hep3B	Crude	13.71 ± 6.66 32.74 ± 4.55	(Rajkumar et al. 2009)	II	S. Sumatra	LC (Lansdown, 2014)	XIV.A.99-99a.
Adoxaceae	<i>Sambucus javanica</i> Blume	Sangitan	N/A	N/A	N/A	(Putra and Rifa'i 2019)	IV. Reduces necrotic cells incidence in lung samples of mice lung cancer	Java	LC (BGCI and IUCN, 2018)	IV.A.52; XII.A.14-14a.
Adoxaceae	<i>Sambucus nigra</i> L.	Eur. elderberry	MCF7 LOVO	Crude	16.9 ± 0.4 12.9 ± 0.3	(Gleńsk et al. 2017)	II	S. Sumatra	LC (Bilz, 2020)	XII.A.50.
Adoxaceae	<i>Viburnum cylindricum</i> Buch. Ham. ex D. Don	Tubeflower viburnum	HL-60	Subfraction	>100	(Tu et al. 2008)	III	W. Java	N/A	VI.E.119; XVIII.A.35, 43.XV.III.A.3 9-39a39b, 41, 61.
Adoxaceae	<i>Viburnum odoratissimum</i> Ker Gawl.	Sweet viburnum	HL-60 A549 SMMC-7721 MCF7 SW-480	Subfraction	0.069 0.320 0.190 0.223	(Zhu et al. 2018; Y.-Y. Zhang et al. 2019)	I.A. Contains 15,18-O-diacetyl-15-O-methylvibsanin U, and in silico study	India, Japan, S. China	LC (Lai, et al., 2019)	I.B.21; I.K.3-3a; II.D.18.
Adoxaceae	<i>Viburnum sambucinum</i> Reinw. ex Blume	Buas-buas	KB LU-1 HepG2 MCF7	Subfraction	2.09 2.09 2.04 2.01	(T. T. Nguyen et al. 2017)	I.A Contains hupehenol A	W. Java	LC (Old-field, 2020)	XVIII.A.17, 42-42a.
Adoxaceae	<i>Viburnum suspensum</i> Lindl.	Sanandkwa	N/A	Subfraction	N/A	(Fukuyama et al. 2002)	IV Contains vibsanin	Japan	N/A	IV.A.16.
Altingiaceae	<i>Liquidambar formosana</i> Hance	Formosa sweet gum	OEC-M1 J5 A549	Subfraction	15.6 32.1 19.3	(Su and Ho 2017)	II Contains ̢-muurolol	C. China, Formosa	LC (Crowley, et al., 2018)	III.F.37-37a-37b; IV.C. 58-58a; V. B.36 -36a; IX.A. 104b.
Amaryllidaceae	<i>Agapanthus africanus</i> (L.) Hoffmanns.	Blue african lily	N/A	N/A	N/A	(Chanchal et.al. 2018)	IV Contains isoliquiritigenin	S. Africa	N/A	I.H.50; III.D.20; VI.C.50.

Amaryllidaceae	<i>Crinum abyssanicum</i> Hochst. ex A.Rich.	Swamp lily	N/A	N/A	N/A	(Abebe 2016)	IV Contains lycorine, crinine, narciclasine, 3-epihalmanthidine, crinamine, lycobetaine precricwelline, crinamide, crinafolidine, criasbetaine, crinasiadine, crinasiatine and crotopoxide	N/A	N/A	I.G.137.
Amaryllidaceae	<i>Crinum macowanii</i> Baker	Common vlei- lily	A549 U87-MG	Crude	12.5 - 25 6.25	(Sebola et al. 2019)	I.D. Contains bacterial endophytes <i>Acinetobacter</i> <i>guillouiae</i> that displayed anticancer activity.	Trop. Africa	N/A	I.H.31.
Amaryllidaceae	<i>Crinum × powellii</i> Baker	Cape lily	HepG2 HCT-116	Crude	13.78 17.27	(Shawky et al. 2018)	II	Hybrid Origin	N/A	I.H.34; I.K.21 -21a-21b; .A.15.
Amaryllidaceae	<i>Crinum zeylanicum</i> (L.) L.	Ceylon swamp lily	CCRF-CEM CEM/ADR5000 MDA-MB-231 MDA-MB-231/ BCRP HCT-116 (p53+/+) HCT-116 (p53-/-) N/A	Crude	17.22 ± 2.19 23.67 ± 1.97 18.01 ± 1.61 11.18 ± 1.11  4.32 ± 0.52  7.45 ± 0.64	(Berkov et al. 2011; Kuete et al. 2013)	I.C Contains crinine	Africa, Trop. Asia	N/A	I.H.38.
Amaryllidaceae	<i>Hymenocallis</i> <i>speciosa</i> (L.f. ex Salisb.) Salisb.	Bakung air mancur, spider lily	N/A	N/A	N/A	(Kornienko and Evidente 2008)	IV Contains narciclasine (lycoricidinol) and pancratistatin,	N/A	N/A	II.10.
Anacardiaceae	<i>Pistacia chinensis</i> Bunge	Pistacia cina	PC-3 HepG2 MCF7 A549	Crude	30.29 132.30 27.64 83.53	(Kirolos et al. 2019)	II	China	LC (Ye, et al. , 2019)	XV.B.22.
Anacardiaceae	<i>Schinus</i> <i>terebinthifolius</i> Raddi	Pink pepper	HepG2 CaCo-2	Crude	1.56 3.77	(El-Nashar et al. 2019)	I.D	Brazil	N/A	IV.C.10; XV.B.11-11b.
Anacardiaceae	<i>Schinus</i> <i>weinnmannifolius</i> Engl.	N/A	HT-29 NCI-H460	Crude	5 2	(Monks et al. 2002)	I.D	Brazil	N/A	IV.C.11; XIII.A.15a- 15b.

Annonaceae	<i>Cananga odorata</i> (Lam.) Hook.f. and Thomson	Ylang-ylang, kenanga	HepG2 Hep2,2,15	Subfraction	0.01 0.01	(Hsieh et al. 2001)	I.B Contains cryptomeridiol 11-R-L-rhamnoside and $\gamma$ -eudesmol	Java Aceh W. Java N. Sumatra	LC (IUCN and BGCI, 2019)	VI.D.138-138a; VI.D.146; VI.D.142; VI.D.165.
Annonaceae	<i>Goniothalamus macrophyllus</i> (Blume) Hook.f. and Thomson	Ki Cantung	COR-L23 LS-174T MCF7	Crude	3.16 $\pm$ 01.14 3.80 $\pm$ 0.00 4.66 $\pm$ 0.04	(Wattana-piromsakul et al. 2005)	I.C Contains goniothalamine	W. Java C. Sulawesi	N/A	VI.D.115, 128, 145, 179; VI.D.177.
Annonaceae	<i>Polyalthia rumphii</i> (E lume ex Hensch.) Merr.	Mempisang	HeLa MCF7 A549	Subfraction	26.9 32.9 33.4	(T. Wang et al. 2018)	II Contains N-trans-cinnamoyltyramine and northalifoline	W. Java	N/A	VI.D.180.
Annonaceae	<i>Polyalthia subcordata</i> (Blume) Blume	Nona leuweung	HeLa	Crude	>1000	(Arbiastutie 2017)	III	Java W. Java	N/A	VI.D.60; VI.D.192.
Annonaceae	<i>Uvaria grandiflora</i> Roxb. ex Hornem.	Akar mempising	MDA-MB-231 HepG2	Subfraction	20.82 >30.72	(Seangphak-dee et al. 2013)	III. Contains (-)-zeylenol	W. Java	N/A	V.B.45-45a; 46-46a.
Apiaceae	<i>Centella asiatica</i> (L.) Urb.	Pegagan	MCF7 CaCo-2 HeLa A549	Crude	49.36 $\pm$ 0.0 81.88 $\pm$ 1.4 56.88 $\pm$ 0.7 46.49 $\pm$ 0.0	(Soyingbe et al. 2018)	II Contains asiatic acid	S. Africa, S. E. Asia	LC (Lansdown, 2019)	I.G.183.
Apocynaceae	<i>Alstonia angustifolia</i> Wall. ex A.DC.	Red-leafed pulai	HT-29	Subfraction	4.61	(Pan et al. 2014)	II Contains villalstonidine E	W. Sumatra	LC (Sidiyasa, 1998)	VII.C.316-316a.
Apocynaceae	<i>Alstonia scholaris</i> (L. Pulai, jelutung, ) R. Br.	Red-leafed pulai	HeLa HepG2 HL-60 KB MCF7	Crude	5.53 25 11.16 10 29.76	(Jagetia and Baliga 2006)	I.C	Aceh Kaliman-tan W. Java	LC (World Conservation Monitoring Centre, 1998)	VII.C.120-120a;.XVIII. B.30-30a; VII.C.327-327a-327b; 350-350a; 442-442a; XII.B.52.
Apocynaceae	<i>Asclepias curassavica</i> L.	Kapas cinde	HepG2 Raji	Subfraction	10.64	(Li et al. 2009; Iqbal et al. 2017)	III Contains asclepin	France	N/A	
Apocynaceae	<i>Cerbera manghas</i> L.	Bintaro	KB BC NCI-H187	Subfraction	0.05 0.0006 0.1	(Cheenpra-cha et al. 2004)	I.A. Contains cardenolide glycoside, deacetyltanghinin, and tanghinin	W. Java	LC (Yu, et al., 2019)	VIII.C.106-106a-106b.
Apocynaceae	<i>Ichnocarpus frutescens</i> (L.) W.T.Aiton	Black creeper	MCF7 BEL-7402 SPC-A1 SGC-7901	Crude	172.2 $\pm$ 3.9 167.2 $\pm$ 3.2 155.3 $\pm$ 4.1 131.7 $\pm$ 1.5	(Singh and Singh 2014)	III	N/A	N/A	CL.60

Apocynaceae	<i>Ochrosia elliptica</i> Labill.	Elliptic yellow wood	MCF7 MDA-MB-231	Subfraction	0.11 ± 0.02 0.11 ± 0.01	(El-shiekh et al. 2017)	I.B Contains 9-methoxyellipticine I.D	Kaliman-tan	N/A	VII.B.76.
Apocynaceae	<i>Tabernaemontana macrocarpa</i> Jack	Lelutung Tokak	L1210	Crude	6.039 7.145	(Pratiwi et al. 2014)		W. Java W. Sumatra	LC (BGCI and IUCN, 2018)	VII.C.408; VII.C.404-404a.
Araliaceae	<i>Panax ginseng</i> C.A.Mey	Ginseng	MK-1 B16 L929	Subfraction	0.027 ± 0.00 1.23 ± 0.03 2.50 ± 0.28	(Matsunaga et al. 1990; K.-K. Li et al. 2019)	I.A Contains panaxyolol, panaxydol, panaxytriol, and 24(S)-floralginsenoside III	C. Java	N/A	I.G.209.
Arecaceae	<i>Areca vestiaria</i> Giseke	Pinang merah	T-47D	Crude	290.68	(Yudistira 2017)		Borneo to Maluku Sulawesi C. Sulawesi	N/A	X.A.21-21a; II.B.20; II.B.49; XIII.A.117. XIII.A.59.
Arecaceae	<i>Serenoa repens</i> (W.Bartram) Small	Saw palmetto	U87 U251	Crude	1,0 1,1	(Habib et al. 2005, Zhou et al. 2015)	I.D Commercial cancer drug Permixon®	China	N/A	
Aristolochiaceae	<i>Aristolochia trilobata</i> L.	Bejuco de santiago	N/A	N/A	N/A	(Santos et al. 2014; Chang et al. 2015)	IV Contains linalool	Nether-lands	N/A	I.A.87
Asparagaceae	<i>Agave americana</i> L.	Lidah buaya america	MCF7	Crude	5	(Pandey et al. 2019)	I.D	Mexico	LC (García-Mendoza et al., 2019)	II.D.17-17a-17b; IV.B.7a, 27.
Asparagaceae	<i>Agave attenuata</i> Salm-Dyck	Fox tail	N/A	N/A	N/A	(Rizwan et al. 2012)	IV Antiinflammation	Mexico	LC (García-Mendoza, et al. 2019)	I.D.24-24a-24c; IV.B.49.
Asparagaceae	<i>Agave salmiana</i> Otto ex Salm-Dyck	Giant agave	HT-29	Crude	3.8 ± 1.3	(Santos-Zea et al. 2016)	I.D	Mexico	LC (García-Mendoza et al. 2019)	II.D.36-36a.
Asparagaceae	<i>Dracaena draco</i> (L.) L.	Dragon tree	CaCo-2 A498	Crude	85.1 ± 6.9 176.2 ± 18.2	(Valente et al. 2012)	III	Canary Isl.	VU (Bañares et al. 1998)	I.E.2.
Asparagaceae	<i>Eucomis autumnalis</i> (Mill.) Chitt.	Pineapple Lily	Huh7	Crude	7.8	(Bisi-Johnson et al. 2011)	I.D	S. Africa	N/A	I.I.28.
Asparagaceae	<i>Eucomis comosa</i> (Houtt.) Wehrh.	Slender pineapple flower	N/A	N/A	N/A	(Masondo et al. 2014)	IV Inhibitor COX-1 and COX-2	Africa	N/A	I.G.53; I.H.8, 45, 58; III.D.18.

Asparagaceae	<i>Sansevieria ehrenbergii</i> Schweinf. ex Baker	Samurai sansevieria	BxPX-3 MCF7 SF-268 NCI-H460 KM20L2 DU-145	Subfraction	0.93 0.62 0.68 0.26 0.22 0.42	(Magadula and Erasto 2009)	I.A Contains sansevistatin 2	Abyssinia	N/A	I.D.11.
Asparagaceae	<i>Yucca aloifolia</i> L.	Spanish bayonet	A549 HepG2 CaCo-2 MCF7 B16	Crude	271.5 61.55 871.5 1584 N/A	(El Hawary et al. 2018)	II	S. America Mexico	N/A	XII.A.30-30a-30b; II.D.10-10a-10b.
Asparagaceae	<i>Yucca glauca</i> Nutt.	Yuka, soapweed yucca	HL-60	Crude	N/A	(Patel 2012)	IV Contains yuccaol	N/A	LC (Rowe and Puente 2020)	XII.A.23-23a
Asparagaceae	<i>Yucca gloriosa</i> L.	Yuka amerika	HL-100	Crude	>156.25	(Obaid et al. 2017)	III	N/A	N/A	I.D.7; IV.B.10; XII.A.19.
Athyriaceae	<i>Diplazium esculentum</i> (Retz.) Sw.	Paku sayur	MDA-MB-231	Crude	1.62	(Rahmat et al. 2003)	I.D	N/A	LC (Irudayaraj 2011)	PT.122.
Berberidaceae	<i>Mahonia fortunei</i> (Lindl.) Fedde	Ki koneng	MCF7 A431 U87-MG	Crude	>50	(Rezadost et al. 2019)	III	China	N/A	I.K.31; IV.A.13-13a; V.A.20.
Betulaceae	<i>Alnus japonica</i> (Thunb.) Steud	Alder	B16 SNU-1 SNU-354 SNU-C4	Subfraction	8.12 13.39 23.15 21.53	(Choi et al. 2008)	II Contains oregonin, 1,7-bis-(3,4-dihydroxyphenyl)-heptane-3-O-β-D-glucopyranosyl(1→3)-β-D-xylopyranoside, and platyphylloside	Formosa, N.E. Asia	LC (Shaw et al. 2014)	VI.C.46a, 82-82a; VII.C.70-70b-70c; VIII.B.207; IX.A.92-92a.
Bignoniaceae	<i>Oroxylum indicum</i> (L.) Kurz	Bungli, pongporang	Hela	Crude	112.3 ± 4.4	(Moirang-them et al. 2013)	III	Kalimantan	N/A	VIII.C.20-20a, 91-91a.
Bignoniaceae	<i>Tabebuia hypoleuca</i> (C.Wright ex Sauvalle) Urb.	Bunga tabebuya	UACC-62 MCF7 786-0	Crude	N/A	(Perera et al. 2019)	I.C. Due to Total growth inhibition (TGI), it was classified as potent activity to three assayed cell lines.	Cuba	LC (Areces-Mallea 1998)	VI.A.37.

Bignoniaceae	<i>Tecoma stans</i> (L.) Juss. ex Kunth	Yellow elder, bunga terompet kuning	HT-29 NCI-H460	Crude	90 97	(Monks et al. 2002)	II	Trop. America	LC (BGCI and IUCN 2019)	XII.B.32-32a.
Bixaceae	<i>Bixa orellana</i> L.	Kesumba, prada, galuga	B16F10	Crude	121.60 ± 6.2	(Kumar and Periyasamy 2016)	III	Australia	LC (Wheeler and Beech 2019)	VI.A.38a.
Blechnaceae	<i>Blechnum orientale</i> L.	Paku leuncir, paku lubang	HT-29	Crude	27.5 ± 1.4	(H. Y. Lai et al. 2010)	II	N/A	N/A	PT.74.
Buxaceae	<i>Buxus microphylla</i> Siebold and Zucc.	Japanese boxwood	HL-60 SMMC-7721	Subfraction	8.20 9.20 6.95 2.67 8.10	(Bai et al. 2017)	I.A Contains buxmicrophylline R	China	LC (BGCI and IUCN, 2019)	II.C.70-70a
Buxaceae	<i>Buxus papillosa</i> C.K.Schneid	Boxwood	MCF7 MDA-MB-231	Crude	26.00 14.19 39.99 99.17 47.29	(Saleem et al. 2019)	II	China, N. Africa, S. Europe	N/A	G.42; II.1-1a-1b; IV.C. 1; V.A.29; VI.C.78-78a.
Cactaceae	<i>Opuntia microdasys</i> (Lehm.) Pfeiff.	Kaktus bunny ears	MCF7 HCT-15 HeLa HepG2	Crude	>400 97 ± 1 117 ± 4 238 ± 5	(Chahdoura et al. 2016)	II	N/A	LC (Bárceñas 2017)	CA.B.6; CB.B.2.
Cactaceae	<i>Opuntia robusta</i> J.C. Wendl.	Wheel cactus	HT-29 CaCo-2	Crude	N/A	(Serra et al. 2013)	IV Contains betasianin	N/A	LC (Hernández et al. 2017)	CA.C.1.
Campanulaceae	<i>Lobelia laxiflora</i> Kunth	Lobelia meksiko	KB	Crude	3.2	(Alonso-Castro et al. 2011)	I.D	Mexico	N/A	I.K.8; IV.A.80-80a-80b.
Chloranthaceae	<i>Sarcandra glabra</i> (Thunb.) Nakai	Bone-knitted lotus	HL-60	Crude	58	(W. Li et al. 2007)	II	W. Java Flores	N/A	V.A.62-62a-62b, 63-63a; V.A.67-67a.
Celastraceae	<i>Catha edulis</i> (Vahl) Endl.	Khat	MCF7 A2780 HT-29	Crude	22.65 ± 3.51 20.97 ± 5.03 39.22 ± 0.10	(Alsanosy et al. 2020)	II	Arabic, N. Africa	LC (Hilton-Taylor 1998)	I.J.13.
Cibotiaceae	<i>Cibotium barometz</i> (L.) J.Sm.	Paku simpai	CaCo-2	N/A	N/A	(Q. Wu and Yang, 2009)	IV Antiinflammation	N/A	N/A	PT.108, 160.

Clusiaceae	<i>Calophyllum soulattri</i> Burm.f.	Bintangor	SNU-1 HeLa NCI-H23 HepG2 K-562 Raji LS-174T SK-MEL-28 IMR-32	Subfraction	1.56 2.18 2.08 2.86 1.75 2.02 2.49 1.45 0.54	(Mah et al. 2012)	I.A. Contains soulattrin, caloxanthone C	Jambi W. Java	LC (Steven 1998)	IX.B.67; IX.C.42a.
Clusiaceae	<i>Garcinia celebica</i> L.	Seashore Mangosteen	MCF	Crude	87	(Subarnas et al. 2012)	II	Aceh, C. Sulawesi	N/A	IX.C.9; VIII.C.93.
Clusiaceae	<i>Garcinia dioica</i> Blume	Asam kandis	N/A	N/A	N/A	(Hemshe-khar et al. 2011)	IV Contains rubraxanthone	W. Java	N/A	IX.C.32-32a.
Clusiaceae	<i>Garcinia dulcis</i> (Roxb.) Kurz	Mundu	HepG2	Crude	7.5 ± 2.52	(Abu Bakar et al. 2015)	I.D	C. Sulawesi	LC (BGCI and IUCN 2019)	IX.C.55.
Clusiaceae	<i>Garcinia lateriflora</i> Blume	Gamboge	HT-29	Subfraction	0.36	(Ren et al. 2010)	I.B. Contains morellic acid	Aceh	N/A	IX.C.33.
Clusiaceae	<i>Garcinia latissima</i> Miq.	Kandis	N/A	N/A	N/A	(Imran et al. 2019; Purbowati and Ersam 2019)	IV Contains kaemferol	Papua	N/A	VII.B.133-133a.
Clusiaceae	<i>Garcinia rostrata</i> (Hassk.) Miq.	Lulai, loli	MCF7	Crude	65 ± 40	(Jabit et al. 2009)	II	Bengkulu	N/A	IX.C.68.
Clusiaceae	<i>Garcinia x mangostana</i> L.	Manggis	MCF7 A549 HepG2 CNE	Subfraction	2.93 2.03 1.78 1.59	(Fu et al. 2013)	I.A Contains garcinon C	W. Java	N/A	IX.C.54, 57.
Combretaceae	<i>Terminalia calamansanay</i> Rolfe	Philippine Almond	HeLa HepG2 T24 HL-60	Subfraction	141.05 96.85 38.86 24.11	(L.-G. Chen et al. 2009)	II Contains Punicalagin, Sanguin H-4	S. Sulawesi	LC (BGCI and IUCN, 2019)	VIII.B.98.
Compositae	<i>Achillea millefolium</i> L.	Yarrow, daun seribu, tepus sigung	MIA-PaCa2 PANC-1	Crude	28.8 ± 15.8 >100	(Mouhid et al. 2018)	II	C. Asia, Europe	LC (Maiz-Tome 2016)	I.G.69; I.J.I.1; III.D.12.
Compositae	<i>Achillea ptarmica</i> L.	Sneezewort yarrow	N/A	N/A	N/A	(Ee et al. 2010; Althaus et al. 2014)	IV Contains pellitorine	Japan	LC (Bilz 2013)	I.J.I.2; III.D.2.
Compositae	<i>Eclipta prostrata</i> (L.) L.	Karichalai, false daisy, luwisa	HeLa	Subfraction	50	(Kannabiran and Khanna 2009)	II Contains dayscyphin C	Africa	LC (Lansdown and Beentje H.J. 2017)	I.G.181.
Compositae	<i>Gerbera jamesonii</i> Bolus ex Hook.f.	Gerbera	A549	N/A	N/A	(Agarwal et al. 2014)	IV. Antiproliferatif and antimetastasis	S. Africa	N/A	I.G.75; III.D.10.

Compositae	<i>Smallanthus sonchifolius</i> (Poepp.) H.Rob	Daun insulin, yakon	HepG2	Crude	58.2 ± 1.9	(Myint et al. 2019)	II	Japan	N/A	V.A.56.
Compositae	<i>Taraxacum campyloides</i> G.E.Haglund	Anddelion	MCF7	Crude	190.5	(Mu-hammed et al. 2018)	III	Europe	N/A	I.G.78.
Compositae	<i>Tithonia diversifolia</i> (Hemsl.) A.Gray	Bunga matahari meksiko	HeLa	Crude	3.38	(Arbiastutie 2017)	I.D	C. America	N/A	I.K.50; III.D.6.
Compositae	<i>Vernonia amygdalina</i> Delile	Daun pahit, daun afrika	MCF7 MDA-MB-231	Crude	56 46	(Wong et al. 2013)	II	China	N/A	III.E.38-38a.
Compositae	<i>Vernonia arborea</i> Buch. -Ham.	Merambung	MCF7 MDA-MB-231 MCF10A	Subfraction	8.02 6.13 19.32	(Valkute et al. 2018)	II Contains (3R,3aS,6aR,8S,9aR,9bS)- 8-Hydroxy-6,9- dimethylene-3-(((R)-1- (naph-thalen-1-yl)ethyl)- amino)methyl)decahydroaz uleno [4,5-b] furan-2(3H)-one and (3R,3aS, 6aR,8S,9aR,9bS)-8- Hydroxy-6,9-di-methylene- 3-(((R)- 1-(naphthalen-1- yl)ethyl)amino)methyl)dec ahydroazuleno [4,5-b] furan-2(3H)-one II	W. Sumatra W. Java Jambi	N/A	VII.C.3; III.E.43, 47; VI.E.129; VII.C.208.
Cornaceae	<i>Alangium chinense</i> (Lour.) Harms	Kicareuh	HeLa	Crude	>12.5	(Fan et al. 2017)	II	China, India Jambi W. Java	N/A	V.A.20; VI.A.15-15a; VI.E. 76; VII.C. 193; VII.B. 10-10a; VI.A.50.
Cornaceae	<i>Alangium javanicum</i> (Blume) Wangerin	Meranti putih	N/A	N/A	N/A	(Pham et al. 2005)	IV. Contains javanisida and alangisida	Lampung	LC (World Conser- vation Monito- ring Centre, 1998)	



Cornaceae	<i>Camptotecha acuminata</i> Decne.	Pohon bahagia	MDA-MB-435S	Subfraction	0.74	(J. Zhang et al. 2007; Lichota and Gwozdzin-ski 2018)	I.B Contains camptothecin	N/A	N/A	IV.E.38;
Costaceae	<i>Cheilocostus speciosus</i> (J.Koenig) C.D.Specht	Crepe ginger	HepG2	Crude	13.87 ± 1.4	(Gheraibia et al. 2020)	II	W. Java	N/A	I.K.142.
Crassulaceae	<i>Kalanchoe beharensis</i> Drake	Elephant's ear kalanchoe, kalanchu	HL-60 HL-60R	Essential oil	25.0 ± 0.6 36.5 ± 0.3	(Poma et al. 2019)	II	N/A	VU (Rabehevit ra 2019)	VI.D.62, 144.
Cupressaceae	<i>Cryptomeria japonica</i> (Thunb. ex L.f) D.Don	Sugi, Japanese cedar	KB	Subfraction	3.43	(C.-C. Chen et al. 2010)	I.B Contains crytotrione	China, Japan Japan	NT (Thomas et al. 2013)	I.J.15-15a; I.K.201-201a; II.B. 11; III.B.12-12a-12b; XII.B.22; XIV.B.22-22a-22b; III.C.58-58a-58b.
Cupressaceae	<i>Cupressus lusitanica</i> Mill.	Cemara meksiko	THP-1 DU-145 HeLa MCF7 HepG2	Crude	60.8 ± 5.8 74.6 ± 6.1 83.1 ± 6.7 13.1 ± 0.9 93.8 ± 7.4	(Mbaveng et al. 2011)	II	Guatemala-la, Mexico	N/A	I.J.4; III.E.3; VI.A.25; VI.E.6-6a.
Cupressaceae	<i>Cupressus sempervirens</i> L.	Cemara italia	NBA-4 HL-60 EACC C32	Essential oil	333.79 365.41 372.43 104.90	(Loizzo et al. 2008; (Fayed 2015)	III	Europe N. India, S. Europe, W. Asia	LC (Farjon 2013)	III.C.7; V.B.1-1a, 5a; VI.A.1.
Cupressaceae	<i>Juniperus chinensis</i> L.	Cemara china	HT-29	Subfraction	14.05	(Kwon et al. 2010)	II	China, Himalaya	LC (Farjon 2013)	II.A.53; III.C.49-49a-49b; V.C.16-16a-16b; VI.A.3-3a
Cupressaceae	<i>Juniperus procera</i> Hochst. ex Endl.	Cedar afrika	CaCo-2	Crude	8.8	(Ganash 2019)	I.D	Kenya	LC (Farjon 2013)	I.D.44; I.G.39-39a-39b; II.A.3; III.C.130-130a; XI.A.20-20a-20b.
Cupressaceae	<i>Juniperus procumbens</i> (Siebold ex Endl.) Miq.	Japanese juniper	N/A	N/A	N/A	(Kusari et al. 2011; Tavares and Seca 2018)	IV Contains deoxypodophyllo-toxin	W &S. Korea, S. Japan	LC (Farjon and Carter 2013)	I.G.12.

Cupressaceae	<i>Juniperus virginiana</i> L.	Red juniper, cemara angina kerucut	HepG2 Hep3B A549 MCF7 MDA-MB-231	Essential oil	11.18 ± 0.71 3.02 ± 0.03 1.79 ± 0.07 3.99 ± 0.13 4.32 ± 0.05	(Yen et al. 2012)	I.C	N. America	LC (Farjon 2013)	IV.F.10; VIII.A.7.
Cupressaceae	<i>Platycladus orientalis</i> (L.) Franco	Cemara kipas	A549 HepG2 MCF7 NIH3T3	Subfraction	9.2 11.4 10.4 >20	(Selim et al. 2020)	II Contains apigenin 8- gernayl-40-O-a-glucoside pyranoside	N.W. China to Korea	NT (Farjon 2013)	V.E.21-21a; V.C.13-13c; VI.A.4-4a; VI.D.7-7a; XII.A.9; XIV.A.45-45a-45b; XIV.B.17-17a, 41.
Cupressaceae	<i>Thuja occidentalis</i> L.	White cedar	A549	Subfraction	7.6 ± 0.05	(Mukherjee et al. 2014)	II Contains flavonol	Hungaria	LC (Farjon 2013)	II.A.52; XX.B.19-19a.
Cupressaceae	<i>Thuja standishii</i> (Gord.) Carr	Cemara jepang	N/A	N/A	N/A	(Tanaka 2000)	IV <i>In vitro</i> study, Contains labande diterpenoids	Japan	NT (Carter and Farjon 2013)	V.C.11.
Cupressaceae	<i>Thujopsis dolabrata</i> (L.f.) Siebold and Zucc.	Hiba, asunaro	MKN-45	Essential oil	0.002	(Nagata et al. 2016)	I.D	Japan	LC (Carter 2013)	I.I.12; III.E.27-27a; IV.E.27.
Cyperaceae	<i>Cyperus alternifolius</i> L.	Umbrella papyrus	N/A	N/A	N/A	(Al-Gara'awi et al. 2019)	IV. Contains 2,7-Diphenyl-1,6-dioxypyridazino[4,5:2',3']pyrrolo[4',5'-d]pyridazine and Methyl 6-oxoheptanoate, and others	W. Sumatra	LC (Lansdown 2018)	X.A.63.
Dilleniaceae	<i>Dillenia philippinensis</i> Rolfe	Katmon	MCF7 HCT-116 HCT-15 HCT-15/Dox	Crude	11.92 ± 1.91 14.23 ± 0.65 9.13 ± 1.45 23.11 ± 0.67	(Dante et al. 2019)	I.C	Philippines	NT (Energy Development Corporation 2020)	I.A.71-71a, 96; I.D.76-76a; II.B. 13-13a-13b.
Dilleniaceae	<i>Dillenia serrata</i> Thunb.	Simpur	N/A	N/A	N/A	(Nassar et al. 2012; Jalil et al. 2015)	IV Contains oetjapic acid and betulinic acid	C. Sulawesi Sulawesi W. Java	LC (IUCN and BGCI 2019)	VIII.C.66; VI.D.193-193a; VI.D.166-166a.
Dioscoreaceae	<i>Dioscorea bulbifera</i> L.	Gadung, gembolo	CCRF-CEM MDA-MB-231 HCT-116 (p53+/+)	Crude	19.77 ± 2.22 33.17 ± 2.91 36.14 ± 2.37	(Kuethe et al. 2013)	II	N/A	N/A	CL.12.

Dioscoreaceae	<i>Tacca chantrieri</i> Andre	Bunga kelelawar hitam	HCT-116 HepG2 BGC-823 NCI-H1650 A2780	Subfraction	0.81 0.79 0.92 2.15 0.75	(Ni et al. 2015)	I.A Contains taccalonolide B	Aceh	N/A	I.B.68-68a.
Dipterocarpaceae	<i>Shorea javanica</i> Koord. and Valetton	Damar	HL-60 CRL1579	Subfraction	4.7 7.5	(Ukiya et al. 2010)	II Contains Dammarenoyl-l-phenylalanine	Lampung	EN (Bars-tow 2018)	IX.C.52-52a, 56-56a, 61-61a.
Dipterocarpaceae	<i>Shorea platyclados</i> Slooten ex Endert	Meranti merah	N/A	N/A	N/A	(Saroyobudiyo no and Aisyah 2006; Honari et al. 2019)	IV Contains resveratrol	Banten	EN (Ashton 1998)	IX.C.45-45a-45b.
Ebenaceae	<i>Diospyros celebica</i> Bakh.	Black ebony	N/A	N/A	N/A	(Mallava-dhani et al. 1998)	IV Contains plumbagin	Sulawesi W. Java	VU (World Conser-vation Monitor-ing Centre 1998)	III.D.38, 54; III.D.41, 43.
Ebenaceae	<i>Diospyros discolor</i> Willd.	Buah bisbul, samolo, butterfruit	HT-29 J5 A549	Subfraction	0.8 12.1 10.8	(Su et al. 2015)	I.A Contains $\alpha$ -Cadinol	W. Java	N/A	IX.B.151-151a-151c.
Ebenaceae	<i>Diospyros kaki</i> L.f.	Kesemek, persimon	A549 HepG2 HT-29	Subfraction	6.04 13.2 11.76	(G. Chen et al. 2007)	II Contains kakisaponin A	China, Japan	LC (Zhao, Yu, BGCI and IUCN, 2019)	I.A.23-23a; III.D.37-37a, 39-39a-39b, 46, 48.
Elaeocarpaceae	<i>Elaeocarpus densiflorus</i> Knuth	N/A	N/A	N/A	N/A	(Shah et al. 2011)	IV Contains elaeocarpidin	Papua	N/A	VII.C.328-328a-328b, 457-457a-457b.
Elaeocarpaceae	<i>Elaeocarpus glaber</i> Blume	Bengkinang	MCF	Crude	297	(Subarnas et al. 2012)	III	Jambi	N/A	IX.B.33.
Elaeocarpaceae	<i>Elaeocarpus petiolatus</i> (Jacq.) Wall.	Derumun babi	MDA-MB-468 MDA-MB-231 MCF7 SKBR3 SW-480	Subfraction	N/A	(Cho, 2019)	IV Contains cucurbitacin	S. Sumatra Jambi Lampung Bengkulu	LC (Zhao, Yu, BGCI and IUCN, 2019)	VII.C.384; IX.B.65; IV.A.141-141a; IV.A.142
Elaeocarpaceae	<i>Elaeocarpus reticulatus</i> Sm.	Blueberry ash	BxPC-3	Crude	22.14	(Turner et al. 2020)	II	W. Sumatra	N/A	VII.C.353-353a.
Elaeocarpaceae	<i>Elaeocarpus serratus</i> L.	Ceylon olive	N/A	N/A	N/A	(Geetha et al. 2013)	IV Contains farnesol	W. Sumatra	N/A	VII.C.410.
Elaeocarpaceae	<i>Elaeocarpus sylvestris</i> (Lour.) Poir.	The woodland elaeocarpus	N/A	N/A	N/A	(L. Wu et al. 2019)	IV Contains brevifolin	W. Java	LC (BGCI and IUCN, 2019)	VII.C.249.

Ericaceae	<i>Vaccinium varingiaefolium</i> (Blume) Miq	Cantigi	T-47D MCF7	Crude	75.23 88.89	(Kosasih et al. 2019)	II	Malesia W. Java	N/A	VII.C.95-95a; I.G.194.
Euphorbiaceae	<i>Acalypha hispida</i> Burm.f.	Red hot cat's tail	N/A	Subfraction	N/A	(Evanjelene and Karthiga 2018)	IV Studi in silico, Contains 5-Hydroxymethylfurfural and Beta-Amyrin	New Guinea	N/A	IV.A.83-83a; VI.D.6-6a.
Euphorbiaceae	<i>Acalypha wilkesiana</i> Müll.Arg.	Akalipa, daun renda	U87-MG A549	Crude	28.03 ± 6.44 89.63 ± 2.12	(Lim et al. 2011)	II	Fiji Isl.	N/A	II.E.18-18a; VI.C.40-40a
Euphorbiaceae	<i>Aleurites moluccanus</i> (L.) Willd.	Kemiri	N/A	Subfraction	N/A	((Monks et al. 2002); Tian et al. 2019)	IV Contains coumarin scopoletin	C. Sulawesi	LC (Rivers et al., 2017)	XIX.A.33, 34.
Euphorbiaceae	<i>Croton argyratus</i> Blume	Calik angin	LU-1	Crude	1.7	(Horgen et al. 2001; Nath et al. 2013)	I.D Contains Ent-16β-17α-di-hydroxykaurane	Aceh W. Java W. Sumatra	LC (Old-field, 2020)	VIII.B.279a; VIII.A.46; VIII.B.104; VIII.B.323a.
Euphorbiaceae	<i>Euphorbia milii</i> Des Moul.	Pakis giwang, bunga euphorbia	N/A	Subfraction	N/A	(Kamurthy and Dontha 2015; Liao et al. 2018)	IV Contains taraxerol and quercetin	Madagas-car	LC (Razana-jato, 2020)	III.C.1.
Euphorbiaceae	<i>Euphorbia pulcherrima</i> Willd. ex Klotzsch	Poinsettia	Ehrlich ascites	Subfraction	3.32	(Smith-Kielland et al. 1996)	I.B Contains 9,19-cycloart-23-ene-3J1,25-diol	Mexico	LC (BGCI and IUCN, 2019)	LD.42; I.K.77-77a, 78-78b-78c; VI.C.33-33a-33b; XI.A.6
Euphorbiaceae	<i>Jatropha gossypifolia</i> L.	Jarak merah	HepG2-1886 WIDR HeLa AGS	Subfraction	0.99 2.79 1.60 0.78	(Asep et al. 2017)	I.A Contains jatrophone	S. E. Sulawesi	LC (BGCI and IUCN, 2019)	VIII.C.28.
Euphorbiaceae	<i>Macaranga rhizinoides</i> (Blume) Müll.Arg.	Awu	P388	Subfraction	4.97	(Tanjung et al. 2010)	II Contains macarhizinoidins A and B	Java	N/A	VII.C.3-3a.
Euphorbiaceae	<i>Macaranga tanarius</i> (L.) Müll.Arg.	Parasol leaf tree	U87 A549	Subfraction	0.0144 0.09	(Péresse et al. 2017)	I.B Contains vedelianin	W. Sumatra	N/A	VII.C.341-341a; XIX.A.29-29a-29b, 31
Euphorbiaceae	<i>Macaranga triloba</i> (Thunb.) Müll.Arg.	Mahang damar	Hepa 1c1c7	Subfraction	N/A	(Jang et al. 2004)	IV COX-1 and COX-2 inhibitor, Contains 3,7,3',4'-tetramethylquercetin and 3,7-dimethylquercetin	W. Java	N/A	XVIII.A.26.

Equisetaceae	<i>Equisetum ramosissimum</i> Desf.	Branched Horsetail	A375 A375.S2 A2058	Crude	N/A	(P.-H. Li et al. 2016)	IV Melanoma inhibitor	N/A	LC (Lansdown, 2018)	PT.169.
Fagaceae	<i>Quercus acuta</i> Thunb.	Japanese green oak	N/A	Subfraction	N/A	( Jong et al. 2012; Huang et al. 2019)	IV Contains chlorogenic acid	Japan	LC (BGCI and IUCN, 2019)	XIII.A.36; XIII.B.55.
Gnetaceae	<i>Gnetum gnemon</i> L.	Melinjo	P388	Subfraction	25.5	(Cahyana and Ardiansah 2016)	II. Contains gnetol and (+)-lirioresinol B	N/A	LC (Baloch, 2011)	IX.A.14.
Hernandiaceae	<i>Hernandia nymphaeifolia</i> (J.Presl) Kubitzki	Kampis tiongkok	KKU-M156 HepG2	Subfraction	2.08 1.68	(Suthiwong et al. 2018)	I.B. Contains $\beta$ -apopicropodo-phyllin, dehydro-podophyllotoxin, deoxypodorhizone, and (-)-maculatin	Papua	N/A	VII.C.142-142a, 143-143a.
Hydrangeaceae	<i>Dichroa febrifuga</i> Lour.	Hidrangea	MCF7 MDA-MB-231	Crude	0.08 0.08	(Jin et al. 2014)	I.B Contains halofuginone	E. Asia, Himalaya	N/A	IV.D.12-12a; XII.A. 18-18a.
Hypericaceae	<i>Cratoxylum formosum</i> (Jacq.) Benth. and Hook.f. ex Dyer	Butun	HeLa SiHa C-33A	Crude	$143.18 \pm 13$ $106.45 \pm 16$ $130.95 \pm 3.8$	(Promraksa et al. 2015)	III	Bengkulu	LC (World Conservation Monitoring Centre, 1998)	IX.B.106.
Hypericaceae	<i>Hypericum oblongifolium</i> Choisy	Penandt St. John's wort	A1235	Crude	>25	(Madunić et al. 2016)	II	Austria	N/A	VI.E.116.
Hypericaceae	<i>Hypericum uralum</i> Buch.-Ham. ex D.Don	Nepal St Johns Wort	MCF7/DOX	Subfraction	1.44	(X. Li et al. 2017)	I.B Contains Uralione Q	Austria	N/A	VI.E.117.
Iridaceae	<i>Iris halophila</i> Pall.	Long leafed flag	KB HMEC	Subfraction	5.22 6.79	(Y.-Q. Wang et al. 2003)	II. Contains halophilol A	Asia, Europe	N/A	I.J.I.22.
Iridaceae	<i>Iris pseudacorus</i> L.	Yellow flag, yellow iris	N/A	Subfraction	N/A	(Kaššák, 2012)	IV Contains irisquinone A	America	LC (Kavak, 2014)	I.G.100
Juglandaceae	<i>Pterocarya stenoptera</i> DC.	Chinese wingnut	MCF7	Subfraction	N/A	(Kuo et al. 2007)	IV Contains Pterocarnin A	China Switzer-land	LC (Song, et al., 2019)	IV.E.20.IV.E.4 9.
Lamiaceae	<i>Clerodendrum trichotomum</i> Thunb.	Harlequin glorybower	HeLa	Subfraction	28.92	(Xu et al. 2013)	II Contains (20R,22E,24R)-Stigmasta-5,22,25-trien-3b,7b-diol	W. Java	N/A	I.D.81.
Lamiaceae	<i>Rotheca serrata</i> (L.) Steane and Mabb.	Senggugu	EACC	Crude	>250	(Raman et al. 2015)	III	Myanmar, India	N/A	IV.C.7-7a.

Lamiaceae	<i>Gmelina arborea</i> Roxb.	Jati putih	MDA-MB-231 MDA-MB-435 B16F10 CaCo-2 C6 SNB-75 N/A	Crude	0.246 0.379 0.246 0.250 0.304 0.404 N/A	(N'gaman et al. 2014)	I.A	Jambi	LC (de Kok, 2019)	XVIII.B.55-55a
Lamiaceae	<i>Leonurus cardiaca</i> L.	Motherwort	N/A	N/A	N/A	(Sadowska et al. 2017)	IV Immunomodulator and antioxidant	Europe	N/A	IV.B.2-2a.
Lamiaceae	<i>Mentha canadensis</i> L.	American wild mint	N/A	N/A	N/A	(Kapp 2015; Hossan et al. 2014)	IV. Contains Rosmarinic acid, catechin	Europe	N/A	I.G.180.
Lamiaceae	<i>Mentha x piperita</i> L.	Peppermint	SPC-A1 K-562 SGC-7901	Essential oil	10.89 16.16 38.76	(Sun et al. 2014)	II	Europe	N/A	I.G.60.
Lamiaceae	<i>Salvia farinacea</i> Benth.	Salvia ungu	MCF7 NHI-H460 HeLa HepG2	Crude	59.8 ± 0.1 279.5 ± 10.1 77.8 ± 3.5 87.4 ± 5.4	(Afonso et al. 2019)	II	Mexico, Texas	N/A	I.J.II.1.
Lamiaceae	<i>Salvia splendens</i> Sellow ex Schult.	Salvia merah	N/A	N/A	N/A	(Chopra et al. 2016)	IV Contains quercetin	Brazil	N/A	I.A.66; I.G.57; IV.A.87.
Lauraceae	<i>Cinnamomum burmanni</i> (Nees and T.Nees) Blume	Holim, cassia paandg	T-47D	Crude	75	(Anjarsari et al. 2013)	II	Java	N/A	VIII.B.69-69a; VII.C. 7-7c; X.A.4-4a; XI.A.25; XII.B.12-12a, 53; XIII.A.9d-9f; XIV.A. 4-4a.
Lauraceae	<i>Cinnamomum camphora</i> (L.) J.Presl	Camphor	MCF7	Crude	71.2 ± 26.8	(Satyal et al. 2013; Bando-padhyaya et al. 2015)	II	China, Japan	N/A	I.L.11-11a; II.A.8-8a; II.B.4-4a; II.C.1-1a, 24-24b-24c; VIII.B.43-43a; XI.A. 27-27a; XIII.B.1-1a (4); XIV.A. 21-21a, 86-86a.

Lauraceae	<i>Cinnamomum cassia</i> (L.) J.Presl	Casia cina	HL-60 A549	Subfraction	3.18 4.38	(Ngoc et al. 2014)	I.B Contains Coumacassia [6,7-dimethoxy-8-O-(2',3'-epoxy-3',7'-dimethyloct-6'-en-5'-one-1-yl)coumarin]	S. Sumatra W. Sumatra China, Myanmar Jambi W. Java	N/A	II.A.62-62a; II.A.59-59c; VII.C.80; IX.B.108, 109; VII.C. 149; VIII.B. 81-81a; XIX.A.12-12a
Lauraceae	<i>Cinnamomum iners</i> Reinw. ex Blume	Huru geding, kayu tuha	HCT-116	Crude	31	(Ghalib et al. 2011)	II	W. Sumatra W. Java	LC (de Kok, 2019)	VIII.B.260; XIV.A.66-66a; II.A.64; XIV.A.93.
Lauraceae	<i>Cinnamomum subavenium</i> Miq.	Sabal-sabal	A549 DU-145 LNCaP	Subfraction	2.24 ± 0.03 2.42 ± 0.01 7.01 ± 0.03	(R.-J. Lin et al. 2008)	I.B	Jambi	LC (de Kok, 2020)	XVIII.B.39.
Lauraceae	<i>Cinnamomum verum</i> J.Presl	True cinnamon	Hep3B	Crude	3.62	(Perng et al. 2016)	I.B. Contains 2-methoxycinnamaldehyde	Jambi Bengkulu	N/A	VIII.A.34-34a; VIII.B.337.
Lauraceae	<i>Cinnamomun zeylanicum</i> Blume	Kayu manis	MCF7	Crude	58	(Abd Wahab and Adzmi 2017; Kubatka et al. 2020)	II. <i>In vivo</i> study	N/A	N/A	VIII.B.337.
Lauraceae	<i>Cryptocarya chinensis</i> (Hance) Hemsl.	Cryptocarya cina	L1210 P388 A549 HCT-8	Subfraction	0.1 0.1 0.002 0.001	(T.-S. Wu et al. 2012)	I.A Contains (-)-antofine and dehydroantofine	Java, Sumatra	N/A	VI.D.50.
Lauracea	<i>Cryptocarya costata</i> Blume	N/A	P388	Subfraction	1.71	(Usman et al. 2006)	I.B. Contains 2',4'-dihydroxy-5',6'-dimethoxychalcone	C. Java	LC (de Kok, 2020)	VIII.B.263.
Lauracea	<i>Cryptocarya crassinervia</i> Miq.	Meandg batu	A549, MCF7, HT-29	Crude	>10	(Awang et al. 2008; Cortez et al. 2017)	II. Contains (-) Grandisin	W. Sumatra	N/A	VII.C.307.
Lauracea	<i>Cryptocarya konishii</i> Hayata	N/A	P388 HL-60 HCT-116 A549	Subfraction	0.01 0.55 1.98 4.28	(Kurniadewi et al. 2010)	I.A Contains Desmethylinfectocaryone and Cryptocaryone	Formosa	N/A	XV.B.15-15a.
Lauracea	<i>Cryptocarya laevigata</i> Blume	Red-fruited laurel	A549 MDA-MB-231 MCF7 KB KB-VIN	Subfraction	0.021 0.086 0.134 0.074 0.078	(Suzuki et al. 2018)	I.A Contains (-)-neocaryachine	China, Myanmar Lampung W. Java	LC (BGCI and IUCN, 2018)	XIV.A.30-30a; IX.A.60; XV.B.27.
Lauraceae	<i>Cryptocarya strictifolia</i> Kosterm.	N/A	N/A	N/A	N/A	(Juliawaty et al. 2000; Rasul et al. 2013)	IV Contains pinocembrin	N. Sulawesi	N/A	VIII.A.32.

Lauraceae	<i>Laurus nobilis</i> L.	Bay leaf	MCF7 T-47D	Crude	28 12.3 ± 4.0	(Abu-Dahab et al. 2014)	II	Medit Reg.	LC (Khela, and Wilson, 2018)	XIII.B.4; XV.B.25.
Lauraceae	<i>Lindera polyantha</i> Boerl.	Spicewood, spicebush, benjamin bush	N/A	Subfraction	N/A	(Suastri et al. 2005, Yoon et al. 2020)	IV Contains linderin and metil linderin	W. Java	N/A	VII.C.46-46a-46b, 381; VIII.B. 54-54a.
Lauraceae	<i>Litsea cubeba</i> (Lour.) Pers.	Kilemo, krangan	J5 A549	Crude	50 100	(Ho et al. 2010)	II	W. Java S. Sumatra W. Sumatra	N/A	VII.C.136; VIII.B.298, 302; VIII.B.256; XIX.B.18.
Lauraceae	<i>Litsea elliptica</i> Blume	N/A	A549	Crude	N/A	Goh et al. 2018	IV	W. Java Lampung	LC (de Kok, 2020)	VIII.B.121; II.A.86;
Lauraceae	<i>Litsea garciae</i> Vidal	N/A	MCF7 HT-29	Crude	66 73	(Kutoi et al. 2012)	II	C. Sulawesi S. Sumatra Aceh, W. Sumatra	LC (de Kok, 2020)	VII.B.86; VIII.B.299; VII.B.228; IX.B.158-158a; VIII. C.121-121a. V.B.33; VII.C.51b-51c; VIII.B. 239a; VIII.B.285. II.A.87.
Lauraceae	<i>Litsea mappacea</i> Boerl.	Huru koneng	MCF	Crude	200	(Subarnas et al. 2012)	III	W. Java W. Sumatra	N/A	VIII.B.223b.
Lauraceae	<i>Litsea monopetala</i> (Roxb.) Pers.	N/A	MDA-MB-231	Crude	N/A	(Shen et al. 2014)	IV. Chemo-preventive agent	Bengkulu	N/A	VIII.B.223b.
Lauraceae	<i>Persea americana</i> Mill.	Alpukat	MCF7	Subfraction	20.48	(Falodun et al. 2013)	II. Contains 4-hydroxy-5-methylene-3-undecyclidene-dihydrofuran-2 (3H)-one	Mexico	LC (Wegier, et al., 2017)	VIII.A.75-75a-75b.
Leguminosae	<i>Acacia caffra</i> (Thunb.) Willd.	Hook thorn	HeLa A431 A375	Crude	185.00 ± 0.4 132.00 ± 0.7 >200	(Twilley et al. 2017)	III	S. Africa	N/A	VIII.B.2.
Leguminosae	<i>Acacia farnesiana</i> (L.) Willd.	Kembang jepun	HepG2 MDA-MB-231 A549 Ca9-22	Subfraction	1.87 ± 0.04 5.38 ± 0.05 1.70 ± 0.04 1.80 ± 0.04	(A.-S. Lin et al. 2009)	I.A Contains betulinic acid and diosmetin	Trop. America	LC (BGCI and IUCN, 2020)	



Leguminosae	<i>Acacia tenuifolia</i> (L.) Willd.	Ara a gato	M109 A2780	Subfraction	1 13.0	(Seo et al. 2002)	I.B Contains Albiziatrioside A 3-O-[ $\alpha$ -D-xylono-pyranosyl- (1f2)-r-Larabinopyranosyl- (1f6)-2-acetamido-2-deoxy- $\alpha$ -D-glucopyranosyl]oleanolic acid, 3- O-[r-L-Arabinopyranosyl- (1f2)-r-L-arabino-pyranosyl- (1f6)-2-acetamido-2-deoxy- $\alpha$ -D-glucopyranosyl]oleanolic acid, Acacioside B and Acacioside C	Venezuela	N/A	VII.A.62-62a.
Leguminosae	<i>Bauhinia integrifolia</i> Roxb.	Flame vine bauhinia	N/A	Crude	N/A	(Allado-Ombat and Teves 2015)	IV Antiangiogenic	Malaya & Sumatra	N/A	III.C.54.
Leguminosae	<i>Bauhinia strychnifolia</i> Craib	Yhanang andg	HT-29 HeLa MCF7 KB	Subfraction	0.00217 0.06927 0.05857 0.000547	(Yuenyongsaw ad et al. 2013)	I.A Contains 3,5,7,3',5'- Pentahydroxy-flavanonol- 3-O- $\alpha$ -Lrhamnopyranoside	C. Sulawesi	N/A	VII.B.220.
Leguminosae	<i>Bauhinia variegata</i> L.	Camel's foot tree	HEp2 HBL-100	Crude	250 >300	(Raj Kapoor et al. 2006)	III	Myanmar, E. India	LC (Chad- burn, 2012)	II.D.7; IV.D.7.
Leguminosae	<i>Caesalpinia gilliesii</i> (Hook.) D.Dietr.	Kembang merak	MCF7	Crude	36.5	(Emam et al. 2017)	II	Australia	N/A	I.K.59-59a.
Leguminosae	<i>Caesalpinia sappan</i> L.	Secang	4T1	Crude	13.1	(Haryanti et al. 2018)	I.D	Aceh	LC (World Conser- vation Monitor- ing Centre, 2018)	IX.B.70.
Leguminosae	<i>Caesalpinia spinosa</i> (Molina) Kuntze	Divi-divi, tara	K-562	Subfraction	44.50 $\pm$ 4.05	(Castañeda et al. 2012)	II	Pantropic	N/A	IV.E.30b; XIV.A.47; XIV.B.4-4a.
Leguminosae	<i>Dalbergia parviflora</i> Roxb.	Akar laka	KB MCF7 NCI-H187	Subfraction	4.18 5.37 3.47	(Songsiang et al. 2011)	I.A Contains secundiflorol H	W. Java	LC (Chad- burn, 2012)	XIX.A.16.
Leguminosae	<i>Derris elliptica</i> (Wall.) Benth.	Tuba	HCT-116 MCF7	Crude	37 $\pm$ 1.5 34 $\pm$ 0.8	(Fayad et al. 2015)	II	Lampung	N/A	IX.B.103- 103a.

Leguminosae	<i>Enterolobium contortisiliquum</i> (Vell.) Morong	Earpod tree	HepG2 MCF7	Crude	15.7 12.3	(Matloub et al. 2018; Abdel-Mageed et al. 2019)	I.C Contains contortisilioside E	American Trop.	LC (BGCI and IUCN, 2019)	I.J.19; I.K. 72-72a-72b; V.C.39-39a, 62; VIII.B. 303-303a. V.C.52-52a.
Leguminosae	<i>Erythrina abyssinica</i> DC.	Red-hot poker, coral tree	MCF7 MCF/TAMR MCF/ADR MDA-MB-231	Subfraction	4.61 2.42 2.19 3.01	(P. H. Nguyen et al. 2009)	I.A Contains erybroadin B	E. Africa	LC (BGCI and IUCN, 2019)	
Leguminosae	<i>Erythrina crista-galli</i> L.	Dadap merah	MCF7	Crude	23.3 ± 1.9	(Ashmawy et al. 2016)	II	Brazil	LC (BGCI and IUCN, 2019)	V.C.50-50a-50b.
Leguminosae	<i>Erythrina fusca</i> Lour.	Cangkring	HeLa	Crude	76	(Meiyanto et al. 2007)	II	C. Java	N/A	V.C.58.
Leguminosae	<i>Flemingia macrophylla</i> (Willd.) Merr.	Hahapaan	MCF7	Subfraction	N/A	(W.-C. Lai et al. 2013)	IV Contains flemiphilippinin D and flemichin-D	Africa, Asia	N/A	VI.C.65.
Leguminosae	<i>Gleditsia sinensis</i> Lam.	Chinese honey locust	MCF7	Subfraction	19.54	(Yu et al. 2019)	II. Contains gleditsioside F	China	LC (BGCI and IUCN, 2019)	III.C.2.
Leguminosae	<i>Pterocarpus indicus</i> Willd.	Angsana, sono kembang, Papua New Guinea rosewood	N/A	N/A	N/A	(Takeuchi et al. 1986; J. Yang et al. 2020)	IV Contains cinnamaldehyde (E)	Maluku	EN (Barstow, 2018)	XIII.B.8-8a.
Leguminosae	<i>Sophora tetraptera</i> J.F.Mill.	Kowhai	N/A	N/A	N/A	(Baskar et al. 2010; McDougal et al. 2018)	IV Contains luteolin-7-O-β-glucoside and apigenin-7-O-β-glucoside	New Zealand	N/A	III.C.68.
Leguminosae	<i>Sophora tomentosa</i> L.	Ki ucing	HSC-2 HSG	Subfraction	<8 8	(Shiratak et al. 2001)	II Contains sophoraflavanone G	C. Sulawesi	N/A	VIII.B.111-111a; VIII.C.138.
Malvaceae	<i>Cola acuminata</i> (P.Beauv.) Schott and Endl.	Bissy, true kola	LNCAp DU-145	Crude	15 3.6	(Solipuram et al. 2009)	I.D	Borneo	LC (Cheek and Lawrence 2019)	VII.C.73.
Malvaceae	<i>Cola nitida</i> (Vent.) Schott and Endl.	Kola nut	HepG2	Crude	6.5	(Endrini and Marsiati 2009)	I.D	W. Africa	LC (Cheek and Lawrence2019)	VI.D.99-99a-99b.
Malvaceae	<i>Hibiscus rosa-sinensis</i> L.	Kembang sepatu	K-562	Crude	30.90 ± 1.10	(Arullapan et al. 2013)	II	Japan: Sakarotsuji	N/A	XV.A.41-41a.

Malvaceae	<i>Hibiscus syriacus</i> L.	Kembang sepatu mawar	A549	Subfraction	2.59	(Shi et al. 2014)	I.B	Syrian Arab Republic	N/A	VI.C.13;
Melastomataceae	<i>Melastoma malabathricum</i> L.	Rhododen-dron singapura	MCF7	Crude	7.14	(Roslen et al. 2014)	I.C	India, Malay Pen.	N/A	XI.A.28.
Meliaceae	<i>Aglaia angustifolia</i> (Miq.) Miq.	Pasak bumi	MCF7	Subfraction	29.87	(Hutagaol et al. 2020)	II. Contains (22E,24S)-24-propylcholest-5en-3-acetate	Aceh	VU (Pannel, 1998)	IV.C.72; XIV.A.39, 62. IX.A.208.
Meliaceae	<i>Aglaia argentea</i> Blume	Bayur	KB	Subfraction	0.006	(Dumontet et al. 1996)	I.B. Contains Didesmethylocaglamid	W. Sumatra	LC (Pannel, 1998)	III.F.76; IX.A.154.
Meliaceae	<i>Aglaia edulis</i> (Roxb.) Wall.	Mamuara disik	LU-1 LNCaP MCF7 HUVEC	Subfraction	0.001 0.01 0.02 0.1	(Kim et al. 2006)	I.A Contains aglaroxin A, aglaroxin A 1-O-acetate, and 3'-methoxyaglaroxin A 1-Oacetate	Jambi W. Java	NT (Pannel, 1998)	IX.C.39-39a.IX.A.165.
Meliaceae	<i>Aglaia elliptica</i> (C.DC.) Blume	Tanglar, lengsar	BC1 HT-1080 LU-1 Mel2 Col2 KB A431 LNCaP ZR-75 U373	Subfraction	0.9 3.0 1.0 1.0 2.0 6.0 3.0 2.0 2.0 0.8	(Lee et al. 1998)	I.A. Contains 4'-demethoxy-3',4'-methylenedioxy-methyl rocaglate and 5 (1-O-formyl-4'-demethoxy-3',4'-methylenedioxy-methyl rocaglate	Jambi W. Java C. Sulawesi	LC (Pannel, 1998)	VIII.B.8; III.F.75; IX.A.191; IX.A.179.
Meliaceae	<i>Aglaia eximia</i> Miq.	N/A	P388 HT-29	Subfraction	4.26 ± 0.09	(Awang et al. 2012; Harneti et al. 2014)	II Contains dammar-20,25-diene-3b,24-diol and 24(E)-cycloart-24-ene-26-ol-3-one	Aceh W. Java	N/A	IX.A.62-62a-62b, 65-65a-65b; IX.A.68-68a, 76-76a, 89.
Meliaceae	<i>Aglaia forbesii</i> King	Langsat burung	KB	Subfraction	0.006	(Dumontet et al. 1996)	I.B	W. Java	NT (Pannel, 1998)	IX.A.174.
Meliaceae	<i>Aglaia lawii</i> (Wight) C.J.Salandha	Karakil	N/A	N/A	N/A	(Mohamad et al. 1999)	IV Contains aglinin A, aglinin B, and rocaglaol	W. Sumatra Kaliman-tan	LC (Pannel, 1998)	IX.A.151; IX.B.118.
Meliaceae	<i>Aglaia odorata</i> Lour.	Pacar cina	HL-60 SMMC-7721	Subfraction	4.43 5.19 5.44	(Cai et al. 2010)	II. Contains dolabellane diterpenoids	China	NT (Pannel, 1998)	III.F.53-53a-53b.
Meliaceae	<i>Aglaia odoratissima</i> Blume	Kasai	A549 P388	Crude	N/A	(Huspa, 2009)	IV	W. Java	LC (Pannel, 1998)	IX.A.80.

Meliaceae	<i>Aglaia silvestris</i> (M.Roem) Merr.	Asam mbawang	Lu1 LNCaP MCF7	Subfraction	1.2 1.5 1.5	(Hwang et al. 2004)	I.A Contains silvestrol	W. Java	NT (Pannel, 1998)	III.F.79.
Meliaceae	<i>Aglaia tomentosa</i> Teijsm. and Binn.	Nirmula	N/A	N/A	N/A	(Mohamad et al. 1999; Thuaud et al. 2009)	IV Contains rocaglaol	N. Sumatra	LC (Pannel, 1998)	IX.A.211.
Meliaceae	<i>Chisocheton lasiocarpus</i> (Miq.) Valeton	N/A	MCF7	Subfraction	15.05	(Hidayat et al. 2018)	II Contains lasiocarpone	Papua Afrika Tropis	N/A	IX.A.173; IX.A.153-153a.
Meliaceae	<i>Chisocheton patens</i> Blume	Lamboi, latupak	MCF7	Subfraction	1.82	(Supratman et al. 2019)	I.B Contains chisopaten A and chisopaten C	C. Java	N/A	IX.A.134-134a.
Meliaceae	<i>Sandoricum koetjape</i> (Burm.f.) Merr.	Kecapi, mangga hutan	MCF7 MDA-MB-231 T-47D MCF-10A	Crude	44-48	(Aisha et al. 2009)	II	W. Java Lampung	LC (Barstow, 2018)	IX.A.212; IX.B.181; IX.B.180-180a.
Meliaceae	<i>Toona ciliata</i> M.Roem.	Cedar merah	MCF7	Crude	>200	(Nisa et al, 2014)	III	Papua	LC (Barstow, 2018)	VII.B.160.
Meliaceae	<i>Toona sinensis</i> (Juss.) M.Roem.	Surian, mahoni cina	MGC-803 PC-3 A549 MCF7 NIH3T3	Subfraction	7.09 5.65 2.59 4.15 2.48	(S. Yang et al. 2013)	I.A Contains daucosterol and quercetin	India to S. China & Malesia India Papua	LC (Barstow, 2019)	I.A.48; VIII.B.224; VII.C.362-362a; VII.B.127.
Meliaceae	<i>Toona sureni</i> (Blume) Merr.	Suren	Raji Hela	Crude	31 65	(Sari et al. 2012)	II	India to S. China & Malesia Jambi W. Java Lampung	LC (Barstow, 2018)	VIII.B.215; IX.A.11; XVIII.B.38-38a; I.I.80; VII.C.82a-82b; VIII.B. 70a-70b-70c
Menispermaceae	<i>Cocculus orbiculatus</i> (L.) DC.	Cincau cina	HepG2 Hep3B MCF7 MDA-MB-231	Subfraction	0.6 0.75 2.0 1.2	(Chang et al. 2005)	I.A Contains (+)-isotrilobine and (-)-sinococuline	W. Sumatra	N/A	VI.D.151.
Menispermaceae	<i>Stephania hernandifolia</i> (Wiild.) Walp.	Areuy geureung, tayungan	KB	N/A	N/A	(Semwal et al. 2010)	IV. Contains dl-tetrandrine, fangchinoline, d-tetrandrine, and d-isochondrodendrine	N/A	N/A	CL.73.
Moraceae	<i>Artocarpus altilis</i> (Parkinson ex F.A.Zorn)	Sukun	HeLa	Crude	40	(Ganeson et al. 2018)	II	Papua	N/A	VII.B.141.

Moraceae	<i>Artocarpus elasticus</i> Reinw. Ex Blume	Benda, bendho	A549 Hep3B HT-29 MCF7	Subfraction	1.1 3.2 3.1 2.7	(Ko et al. 2005)	I.A Contains artelastoxanthone and artonol A	Kaliman-tan W. Java Bengkulu C. Sulawesi	LC (BGCI and IUCN, 2018)	VIII.C.18, 25; VII.B.69; VI.E.188; XI.A.61
Moraceae	<i>Artocarpus heterophyllus</i> Lam.	Nangka	A549	Crude	35.27	(Patel and Patel 2011)	II	Java	N/A	VII.C.5; VIII.B.218; XI.A.8.
Moraceae	<i>Artocarpus lanceifolius</i> Roxb.	Kaleang	P388	Subfraction	1.7	(Hakim et al. 2002)	I.B. Contains Artoindonesianin P, artobiloxanthone, and cycloartobilo-xanthone	C. Sulawesi	N/A	VII.B.120
Moraceae	<i>Ficus benamina</i> L.	Beringin	MCF	Crude	133	(Subarnas et al. 2012)	III	Trop. Asia	LC (BGCI and IUCN, 2019)	VI.C.76; XIII.A.43; XIII.B.53.
Moraceae	<i>Ficus deltoidea</i> Jack.	Tabat barito	DU-145	Crude	93.11	(Soib et al. 2015)	II	W. Java	N/A	II.C.25b, 39, 53-53a; VII. B.189-189a.
Moraceae	<i>Ficus drupacea</i> Thunb.	Ara coklat-wol, kowang	HeLa MCF7 Jurkat HT-29 T24	Subfraction	15.16 ± 1.6 16.28 ± 1.3 19.64 ± 2.6 25.58 ± 1.3 12.81 ± 1.4	(Yessoufou 2015)	II. Contains oleanolic acid, friedelin, and epilupeol acetate	W. Sumatra	LC (BGCI and IUCN, 2018)	II.C.34.
Moraceae	<i>Ficus fistulosa</i> Reinw. ex Blume	Ara, beunying	MDA-MB-468, MDA-MB-231, MCF7, MCF10A	Crude	0.015 0.191 0.362 4.259	(Al-Khdhairawi et al. 2017)	I.A Contains (-) tengchlorenine	Jambi Java, Sumatra W. Java	LC (Shao et al., 2019)	II.C.45; VII.C.266-266a; VII.C. 67-67a; VIII.B.40-40a; X.B.8.
Moraceae	<i>Ficus hirta</i> Vahl.	Gegedanganara	HeLa	Crude	>1000	(Zeng et al. 2012)	III	S. Sumatra	N/A	II.C.49a-49b-49c.
Moraceae	<i>Ficus religiosa</i> L.	Ara	A549	N/A	200	(Sankar et al. 2014)	IV. Engineered with copper oxide nanoparticle	Srilangka	N/A	I.C.35-35b.
Moraceae	<i>Ficus septica</i> Burm.f	Awar-awar	T-47D	Crude	9.3	(Nugroho et al. 2013)	I.D	Malesia W. Java W. Sumatra China	LC (BGCI and IUCN, 2019)	II.C.14; II.C.41; II.C.37; XV.A.25.
Moraceae	<i>Morus alba</i> L.	White mulberry	HL-60 CRL1579	Subfraction	0.95 5.56	(Kikuchi et al. 2010)	I.B Contains albanol A		N/A	
Moraceae	<i>Morus nigra</i> L.	Blackberry	MCF7	Crude	575 ± 15	(Ahmed et al. 2016)	III	Temp. Asia	N/A	III.C.16.
Musaceae	<i>Musa acuminata</i> Colla	Pisang	HePG2 MCF7 EACC	Crude	58.06	(Abou-Elella and Mourad 2015; Salama et al. 2020)	II	W. Java	N/A	I.A.90-90a, 107-107a, 108.

Myricaceae	<i>Myrica esculenta</i> Buch.-Ham. ex D. Don	Bayberry, kaphal	HepG2, Hela	Crude	>1000	(Shod and Shri 2018)	III	W. Java	N/A	VIII.B.108-108a, 149.
Myricaceae	<i>Myrica rubra</i> (Lour.) Siebold and Zucc.	Yangmei, bayberry jepang	MDA-MB-231 Ca-Co2	Subfraction	24.4 ± 2.4	(Ambrož et al. 2015)	II Contains $\alpha$ -humulene	China, Japan	N/A	III.C.63-63a; XI.A.31.
Myrtaceae	<i>Callistemon citrinus</i> (Curtis) Skeels	Sikat botol	MCF7	Crude	2.29	(Fayemi et al. 2019)	I.D	Australia	N/A	I.G.19; II.C. 6; III.C.41-41a; IV.C. 23; IV.E.4; VI.C.18; VII.C.4
Myrtaceae	<i>Eucalyptus globulus</i> Labill.	Gum biru selatan	A549	Crude	N/A	(Adnan 2019)	IV	China	LC (Fensham et al, 2019)	III.F.55-55a.
Myrtaceae	<i>Eucalyptus microcorys</i> F.Muell.	Kayu pohon	MIA-PaCa2	Crude	93.11 ± 3.43 $\mu$ g/mL	(Bhuyan et al. 2018)	II	Australia	NT (Fensham et al, 2019)	III.F.33a-33b-33c; VII.A.2a-2b; XI.A.38; XIII.A.39.
Myrtaceae	<i>Eucalyptus robusta</i> Sm.	N/A	HT-29 U87 SJ-G2 SMA MCF7 MCF10A A2780 H460 A431 DU-145 BE2-C241 MIA-PaCa2	Crude	77 ± 2.0 183 ± 8.7 79 ± 5.6 100 ± 5.0 124 ± 4.5 130 ± 5.2 80 ± 3.0 77 ± 3.0 98 ± 7.8 113 ± 5.5 77 ± 4.6 129 ± 5.8	(Vuong et al. 2015)	II	New S. Wales	NT (Fensham et al, 2019)	VII.A.15, 28-28a-28b, 68; VII.B.41; XIII.A.38-38e.
Myrtaceae	<i>Decaspermum fruticosum</i> J.R.Forst. and G.Forst.	Ipis kulit	MCF	Crude	154	(Subarnas et al. 2012)	III	W. Java	N/A	VI.E.97; XI.C.28; XV.A.17.
Myrtaceae	<i>Eugenia uniflora</i> L.	Dewandaru	T-47D DU-145 JIMT-1 MIA-PaCa2	Crude	65 166.9 ± 3.9 156.6 ± 4.8 219.2 ± 7.8	(Ismiyati et al. 2012; Alade-sanmi et al. 2019)	II	Trop. America	N/A	XIV.A.55-55a.
Myrtaceae	<i>Melaleuca alternifolia</i> (Maiden and Betcher) Cheell	Tea tree	HT-29	Crude	12.5	(Byahatti et al. 2018)	I.D	Australia	N/A	I.A.32a; IV.E.15; VII.C.77d; VIII.A.4.

Myrtaceae	<i>Psidium cattleianum</i> Afzel. ex Sabine	Strawberry guava	HepG2, AGS, HeLa, SNU-1, SNU-16	Subfraction	0.81 2.51 2.76 3.43 5.59	(Jun et al. 2011)	I.A Contains $\beta$ -caryophyllene oxide and quercetin	Brazil	N/A	I.K.51.
Myrtaceae	<i>Psidium guajava</i> L.	Jambu biji	KBM5 SCC4 U266	Crude	22.73 $\pm$ 2.55 22.82 $\pm$ 2.36 20.97 $\pm$ 4.39	(Ashraf et al. 2016)	II	Trop. America	LC (Canteiro & Lucas,., 2019)	I.K.10.
Myrtaceae	<i>Rhodamnia cinerea</i> Jack	Ki beusi	MCF7	Crude	150	(Subarnas et al. 2012)	III	W. Java	LC (BGCI and IUCN, 2018)	VII.C.184; VIII.B.168, 331; XVIII. B.31-31a; XX.A.24.
Myrtaceae	<i>Syzygium cumini</i> (L.) Skeels	Black plum	A549	Crude	59 $\pm$ 4	(Aqil et al. 2012)	II	Java	LC (BGCI and IUCN, 2019)	VIII.B.85, 235-235a.
Myrtaceae	<i>Syzygium jambos</i> (L.) Alston	Jambu mawar, Malabar plum	HeLa A431 A375	Crude	56.20 $\pm$ 3.00 54.70 $\pm$ 0.60 198.00 $\pm$ 3.00	(Twilley et al. 2017)	II	Jambi W. Java	LC (BGCI and IUCN, 2019)	VII.B.80-80a; III.E. 54-54a; XIX.C.38.
Myrtaceae	<i>Syzygium polyanthum</i> (Wight) Walp.	Salam	4T1 MCF7	Crude	672.6 $\pm$ 59.4 126.1 $\pm$ 50.9	(Nordin et al. 2019)	III	W. Sumatra	N/A	VII.C.375.
Oleaceae	<i>Olea europaea</i> L.	Zaitun	T24 MCF7	Subfraction	4.09 2.59	(Goulas et al. 2009)	I.B Contains luteolin, oleuropein, and hydroxytyrosol	Libya	N/A	I.A.105; I.K.198.
Passifloraceae	<i>Passiflora suberosa</i> L.	Markisa, konyal	HCT-116 OVACAR-8 SF-295	Crude	N/A	(Amaral 2019)	III Growth Inhibition Index <50%	Trop. America	N/A	III.D.22.
Pentaphylacaceae	<i>Ternstroemia gymnanthera</i> (Wight and Arn.) Sprague	N/A	N/A	N/A	N/A	(Ikuta et al. 2003; Venkatesan et al. 2017)	IV	Java	N/A	IV.A.17.
Phyllanthaceae	<i>Glochidion eriocarpum</i> Champ. Ex Benth.	N/A	HL-60 HT-29 MCF7 SK-OV-3	Subfraction	4.92 6.09 26.04 14.32	(Kiem et al. 2009)	II. Contains glochieriosides A and B	Papua	N/A	VII.B.116- 116a.
Phyllanthaceae	<i>Glochidion zeylanicum</i> (Gaertn.) A.Juss.	N/A	HEK293 HepG2 PC-3	Crude	66.6 2.99 12.25	(Sharma et al. 2011)	I.C	Jambi	LC (Ye, BGCI & IUCN, 2019)	IX.B.9.

Phyllanthaceae	<i>Phyllanthus emblica</i> L.	Kimalaka, malaka, kemloko	MCF7	Crude	54	(Ponraj and Kannan 2014)	II	W. Java	N/A	VII.C.144-144a-144b, 271-271a.
Pinaceae	<i>Pinus kesiya</i> Royle ex Gordon	Pinus khasi, pinus benguet, pinus tiga jarum	U937 HepG2	Crude	299.0 ± 5.2 52.0 ± 5.8	(Weerapreeyakul et al. 2016)	II	Himalaya to S. E. Asia	LC (Farjon, 2013)	III.B.3a-3b; IV.F.2; XI. A.13-13a; XIII.B.23-23a; XIV.B.34.
Pinaceae	<i>Pinus merkusii</i> Jungh. & de Vriese	Pinus, tusam	HeLa	Crude	384.10	(Proboning-rat et al. 2019)	III	Aceh	VU (Farjon, 2013)	XIV.B.38-38b-38c.
Pinaceae	<i>Pinus parviflora</i> Siebold & Zucc.	Japanese White Pine	L929 ML-1	Subfraction	N/A	(Hanaoka et al., 1989)	IV	Formosa, Japan	LC 9 Farjon, 2013)	V.C.25-25a; XIII.B.3-3a.
Pinaceae	<i>Pinus yunnanensis</i> Franch.	Pinus yunnan	HL-60, SMMC-7721, A549, MCF7, SW-480	Subfraction	N/A	(Lei et al, 2011)	III Contains planchol E	S. and W. China	LC (Farjon et al., 2013)	II.B.14.
Piperaceae	<i>Piper aduncum</i> L.	Seuseureuhansi rihan	HeLa	Crude	3.91	(Wahyu et al, 2013)	I.C	Peru	LC (BGCI, IUCN and Lorea, 2019)	IV.A.27.
Plantaginaceae	<i>Plantago lanceolata</i> L.	Toucan	MCF7 AMJ13 MDA-MB CAL51 HT-29	Crude	674 7200 250 23.7	(Alsaraf et al. 2019)	II	Europe	N/A	III.D.30.
Poaceae	<i>Coix lacryma-jobi</i> L.	Jali	HT-29	Crude	11.61 ± 0.95	(Manosroi et al. 2016)	I.D	Trop. Asia	N/A	I.G.35.
Poaceae	<i>Phyllostachys edulis</i> (Carriere) J.Houz.	Bambu	Hepa 6 3T3-L1	Subfraction	N/A	(Higa et al. 2012)	IV. Contains tricin dan 7-O-methyl-tricin	China	N/A	I.L.2-2a.
Poaceae	<i>Phyllostachys nigra</i> (Lodd. ex Lindl.) Munro	Bambu hitam	A375 L929 HeLa THP-1	Subfraction	26.27 15.77 27.62 24.78	(Lu et al. 2010)	II Contain friedelin	China	N/A	IV.C.31.
Podocarpaceae	<i>Podocarpus macrophyllus</i> (Thunb.) Sweet	Luhansung, kusamak	HeLa AGS MDA-MB-231 HepG2	Subfraction	0.18 0.11 0.23 0.98	(Qi et al. 2018)	I.A. Contains 2,3-dihydro-2β-hydroxypodolid, inumakilactone B , 2β-hydroxy-nagilactone F, and nagilactone F	China, Japan	LC (Farjon, 2013)	XV.A.7.



Polygonaceae	<i>Coccoloba uvifera</i> (L.) L.	N/A	LNCaP	Crude	N/A	(Fort et al. 2018)	IV	Trop. America	LC (IUCN and BGCI, 2020)	VI.D.73-73a; VI.D. 97-97a-97b.
Primulaceae	<i>Ardisia crenata</i> Sims	Mata ayam, coral berry	HepG2	Crude	145 ± 13	(Newell et al, 2010)	III	Venezuela China, E. Malesia W. Java	N/A	I.D.10-10a; I.E.5-5a-5b; I.G.154; IV. A.92
Primulaceae	<i>Ardisia crispa</i> (Thunb.) A.DC.	Christmas berry	MCF7 4T1	Crude	54.98 ± 14.10 42.26 ± 1.82	(Nordin et al. 2017; 2018)	II	Jambi S. Sumatra W. Java	N/A	VII.C.115; VII.C.158-158a
Primulaceae	<i>Embelia ribes</i> Burm.f.	Kicemang beurit	HeLa	Crude	429.99	(Arbiastutie et al. 2017, Chanchal et al. 2018)	III	S. Sumatra	N/A	VI.E.157.
Primulaceae	<i>Marantodes pumilum</i> (Blume) Kuntze	N/A	MCF7 HT-29	Crude	46.82 ± 2.41 44.62 ± 2.11	(Karimi et al, 2016)	II	W. Java	N/A	VII.C.286a, 434-434a.
Pteridaceae	<i>Pityrogramma calomelanos</i> (L.) Link	Paku perak	P388	Subfraction	1.6	(Najihah et al. 2014; Suyatno et al, 2014 )	I.B Contains 2',6'-dihydroxy-4'-methoxydihydrochalcone, kaempferol, and quercetine	N/A	N/A	PT.64.
Rhamnaceae	<i>Colletia paradoxa</i> (Spreng.) Escal.	N/A	HT-29 NCI-H460	Crude	96 93	(Monks et al. 2002)	II	S. Brazil – Uruguay	N/A	I.D.76-76a, 80a.
Rhamnaceae	<i>Ziziphus jujuba</i> Mill	Jujube	MD-MB-468	Crude	0.0005	(Hosyar et al. 2015 Iqbal et al. 2017)	I.B	W. Java	LC (IUCN, 2007)	VII.C.235.
Rhamnaceae	<i>Ziziphus oenopolia</i> (L.) Mill	Kuku heulang	N/A	N/A	N/A	(Shukla et al. 2016)	IV Contains betulinic acid	Jambi Asia, Australia W. Java	LC (Ye, J. et al, 2019)	IX.C.2; VII.C.102; VIII.B.198.
Rosaceae	<i>Eriobotrya japonica</i> (Thunb.) Lindl.	Biwa, loquat	HL-60 CRL1579	Subfraction	2.28 3.97	(Kikuchi et al. 2011)	I.B. Contains δ-oleanolic acid, ursolic acid, and betulinic acid	China, Japan	N/A	I.A.44; I.K.5; XIV. A.31-31a
Rosaceae	<i>Sanguisorba minor</i> Scop.	Salad burnet	N/A	N/A	N/A	(Cuccioloni et al. 2012)	IV. Contains quercetin-3-glucuronide	C. Asia, Europe, N. Africa	N/A	XV.B.12; XVI.A.40-40a.
Rubiaceae	<i>Coffea canephora</i> Pierre ex A. Froehner	Kopi robusta	HT-29	Subfraction	N/A	(Choi et al. 2015; Mori et al. 2016)	IV Contains kahweol, cafestol, 16-O-methylcafestol	Aceh	LC (Chadburn & Davis, 2017)	VII.C.369-369a.

Rubiaceae	<i>Gardenia jasminoides</i> J.Ellis	Kacapiring	MDA-MB-231	Subfraction	73.90	(Kim et al. 2011; Lichota and Gwozdinski 2018)	II Contain genipin	E. Indies China, Japan	N/A	I.F.32-32a; III.F.46c; XI.A.3-3a; XV.A.35-35a-35b.
Rubiaceae	<i>Hamelia patens</i> Jacq.	Fire brush	MDCK HeLa SiHa	Crude	94 ± 1.7 13 ± 1.2 22 ± 1.1	(Mena-Rejon et al. 2009)	I.C	Peru	LC (Cornejo-Tenorio, et al. 2019)	XV.A.30-30b.
Rutaceae	<i>Citrus medica</i> L.	Jeruk sukade	A357	Essential oil	89.1	(Menichini et al. 2010; Chanchal et al. 2018)	II	Jambi	N/A	IX.A.5-5a.
Rutaceae	<i>Clausena excavata</i> Burm.f.	Daun si cerek	A549 HeLa	Subfraction	5.25 1.91	(Peng et al. 2013)	I.B Contains excavatine	Jambi W. Sumatra	N/A	IX.C.18-18a-18d; IX.A.125-125a, 141, 201-201a.
Rutaceae	<i>Murraya paniculata</i> (L.) Jack	Kemuning	HT-29	Subfraction	7.91	(Jiang et al. 2016; Shao et al. 2016)	II Cancerous cell adhesion inhibition	Malesia to Trop. Asia	N/A	IX.A.128-128b, 227.
Salicaceae	<i>Flacourtia rukam</i> Zoll. & Moritzi	Rukam	MCF	Crude	17	(Subarnas et al. 2012)	I.D	Java W. Java Lampung	N/A	VIII.B.12-12b; XI.C.30; VIII.B.193; XI.C.71.
Sapindaceae	<i>Dodonaea viscosa</i> (L.) Jacq.	Hopseed, cantigi, cengkeh laut	MCF7	Crude	19.4	(Shafek et al. 2015)	II	E. Nusa Tenggara	LC (BGCI and IUCN, 2019)	V.B.56.
Scrophulariaceae	<i>Buddleja davidii</i> Franch.	Summer lilac	MGC-803 Bcap-37	Subfraction	7.49 11.95	(Wu et al. 2012)	II `Contains colchicine and luteolin	China	N/A	I.A.20-20a; III.C.17.
Smilacaceae	<i>Smilax zeylanica</i> L.	Gadung china	MCF7	Crude	15.49 ± 1.18	(Uddin et al. 2015)	II	Ceylon, Malesia C. Java W. Java Trop. America	N/A	I.B.7; I.I.53; III.C.56; IX. A.158-158a; XVIII.B.32. I.G.140.
Solanaceae	<i>Capsicum annuum</i> L.	Paprika merah	N/A	Subfraction	N/A	(Maoka et al. 2001)	IV. Contains capsanthin, capsanthin 3'-ester, and capsanthin 3,30-diester	W. Indies	LC (Aguilar-Meléndez et al., 2020)	I.D.41
Solanaceae	<i>Cestrum nocturnum</i> L.	Arum dalu	CNE-2Z BEL-7402 HeLa	Subfraction	17.50 18.71 19.21	(Wu et al. 2007)	II	C. Java N. Sumatra	N/A	I.K.163-163b; I.K.162.
Styracaceae	<i>Styrax benzoin</i> Dryand.	N/A	N/A	N/A	N/A	(Du et al. 2016)	IV			

Symplocaceae	<i>Symplocos cochinchinensis</i> (Lour.) S. Moore	Kendong	U87 HepG2 MCF7	Crude	2-10 50-250 10-50	(Abida et al. 2016; Chanchal et al. 2018)	I.C	Malay Pen. W. Java W. Sumatra	N/A	VIII.B.78; XVIII.A.15a-15b; VIII.B.156; VII.C.412; VIII.B.242-242a.
Taxaceae	<i>Taxus sumatrana</i> (Miq.) de Laub.	Cemara sumatra	KB Hepa 59T/VGH	Subfraction	0.56 0.10	(Shen et al. 2002)	I.B Contains taxuspine F and wallifoliol	Sumatra Jambi W. Sumatra	N/A	III.A.35-35a-35b; II.A.36-36a; III.B.22-22a, 24; III.B.34-34a, 37
Theaceae	<i>Camellia sinensis</i> (L.) Kuntze	Teh hijau	HT-29	Crude	87	(Hajiaghaali-pour et al. 2015; Chanchal et al. 2018)	II	Japan	DD (Rivers and Wheeler 2018)	VI.D.65-65b.
Theaceae	<i>Schima wallichii</i> Choisy	Puspa	MCF7	Crude	20	(Diantini et al. 2012)	I.D	Bangka Belitung W. Sumatra W. Java	LC (Oldfield, 2018)	II.A.54-54a-54c; V.C. 12; VII.C. 373-373a; VIII.B.60-60a-60c; VIII.C.133; XI.C.5-5a; VII.C.372-372a-372b; II.A.55-55a, 61; III.C.79; V.B.16-16a-16b; VI.D. 17-17a; VII. B.21-21a;
Thymelaeaceae	<i>Phaleria macrocarpa</i> (Scheff.) Boerl.	Simalakamama hkota dewa	HeLa 3T3	Subfraction	132 158	(Othman et al. 2014)	III. Contains 2,6,4'-trihydroxy-4-methoxybenzophenone and 6,4'-dihydroxy-4-methoxybenzophenone-2-O-β-D-glucopyranoside	W. Java	N/A	IX.A.162-162a-162b.

Verbenaceae	<i>Lantana camara</i> L.	Saliara, stekan	Huh7	Crude	24.8	(Bisi-Johnson et al. 2011; Arbiastutie et al. 2017; Chanchal et al. 2018)	II	Trop. America	N/A	IV.C.52; VI.B.13-13a.
Violaceae	<i>Viola odorata</i> L.	Bunga violet	MCF7	Subfraction	9.96	(Gerlach et al. 2010)	II Contains cycloviolacin O2	Asia, Europe, N. Africa	N/A	I.D.26.
Vitaceae	<i>Leea indica</i> (Burm. f.) Merr.	N/A	MCF 7 KB	Crude	138.1 ± 19.2 146.9 ± 10.4	(Hsiung and Kadir, 2011)	III	C. Java	LC (Ye, BGCI and IUCN, 2019)	IX.A.78.
Xanthorrhoeaceae	<i>Hemerocallis minor</i> Mill.	Small day lily	HeLa	Crude	N/A	(Fan et al. 2017)	IV	E. Asia	N/A	I.E.1-1a; I.G.51.
Xanthorrhoeaceae	<i>Hemerocallis fulva</i> (L.) L.	Daylily	MCF7 SF-268 HCT-116 NCI-H460	Subfraction	1.8 ± 0.2 2.4 ± 1.8 5.0 ± 0.3 3.8 ± 0.3	(Cichewiz, 2006)	I.A Contains kwanzoquinones A, B, C, and E	E. Siberia, S. Japan	N/A	I.D.8; I.E.4; I.G.49; I.K.75.
Xanthorrhoeaceae	<i>Aloe arborescens</i> Mill.	N/A	N/A	N/A	N/A	(Lissoni et al. 2009)	IV Biochemotherapy with cisplatin	N/A	LC (Martínez 2019)	POT.17.
Xanthorrhoeaceae	<i>Aloe ferox</i> Mill.	Bitter aloe	HeLa CEM	Subfraction	N/A	(Pecera et al. 2000; Chanchal et al. 2018)	II Contains aloe-emodin, emodin, aloin	S. Africa	N/A	IV.B.32.
Xanthorrhoeaceae	<i>Aloe vera</i> (L.) Burm.f.	Lidah buaya	HepG2	Crude	10.45 ± 0.31	(Shalabi et al. 2015)	II	N/A	N/A	III.14.
Zingiberaceae	<i>Etlingera elatior</i> (Jack) R.M.Sm.	Torch Ginger	CEM-SS MCF7 B16	Crude	4 6.25 15	(Habsah et al. 2005; Krajarnig et al. 2017)	I.A	Aceh	LC (Poulsen and Olander, 2019)	I.K.102.
Zingiberaceae	<i>Hedychium coronarium</i> J.Koenig	Gandasuli, white ginger	LNCaP HepG2	Subfraction	20.42 17.39	(Endringer et al. 2014)	II Contains ethoxycoronarin D and isocoronarin D	India	N/A	VI.C.6.