CHAPTER I

HISTORICAL INTRODUCTION

Plants have always been a common source of medicament either in the form of traditional preparations or as pure active principles. According to World Health Organization, about 80% of the more than 4,000 million inhabitants of the world rely chiefly on traditional medicine for their primary health care needs especially in the developing countries (1). There is a wide spread belief that remedies of natural origin are harmless and carry no risk to the consumer. Nothing could be further from the truth, for many of these remedies, often of plant origin, contain potent pharmacologically active agents. Attempts to have a thorough study of local medicinal plants have been initiated. The analyses of natural products are being carried out at present and some results in the phytochemical research area have been achieved and reported.

The plant used in this investigation was found in the eastern part of Thailand where the usage about this plant was told by local residents. The roots and leaves of this plant could cause vomiting effect and were used as antidote for poisoning. The specimen of this plant was identified to be *Aglaia pirifera* Hance , family Meliaceae. Previous studies of this plant were done on the leaf materials by Jongbunprasert (2), and the presence of a novel bis-amide alkaloid called "piriferine" was reported.

Phytochemical screening of the stem bark was done by the author and it was found that the pentane extract gave purple to blue color with Liebermann-Burchard's test suggesting the presence of sterols and triterpenoids. The result was later confirmed by tlc using Liebermann-Burchard and anisaldehyde-sulfuric acid spray reagents as selected means for dectection.

According to Core (3), Meliaceae is composed of 50 genera 1,000 species inclusive 250 species of *Aglaia* (4). Regarding to Craib (5) and Smitinand (6) it was found that there are about 25 species of *Aglaia* in Thailand. These are :-

*** *Aglaia andamanica* Hiern
"สังกะโต้ง" Sang katong (Peninsular)

** A. *argentea* Bl.
"สังเครียดกล้อง" Sang khriat klong (Trang)

** A. *caudata* Hiern
"สังเครียดหน่วยฝ้าย" Sang khriat nuai faai
(Nakhon Si Thammarat)

*** A. *chaudocensis* Pierre
"ประยงค์ใบใหญ่" Prayong baiyai (Bangkok)

*** A. *cordata* Hiern
"สังเครียดลังสาด" Sang khriat langsaat (Trang)

** A. *domestica* Pelleg.
"ดูเกโก" Duu-ke-ko (Karen-Mae Hong Son),
"ลังสาด" Lang-saat (General)
"ลาซะ" Laa-sa (Malay-Peninsular)

** *Aglaia dookkoo* Griff.

"ดูกู" Duu-kuu, "โดกอง" Do-kong (Malay-Narathiwat), "ลองกอง" Longkong (Surat Thani), "ลังสาดเขา" Langsaat khao (Nakhon Si Thammarat)

** A. *edulis* Gray

"คอแลน" Kho laen (Prachuap Khiri Khan)

** A. *gigantea* Pelleg.

*** A. *hoaensis* Pierre

"กระดูกเขียด" Kraduuk Khiat (Nakhon Ratchasima)

* A. *kunstleri* King

* A. *marginata* Craib

*** A. *meliosmoides* Craib

"กระดูกลิง" Kraduuk ling, "หอมคอย" Hom Khoi (Lampang), "พมพี" Phomphee (Udon Thani)

* A. *merostela* Pelleg.

* A. *oblanceolata* Craib

*** A. *odorata* Lour.

"ขะยง" Khayong, "ขะยม" Khayom, "พะยงค์" Phayong, "ยม" Yom (Northern), "ประยงค์" Prayong (Central), "หอมไกล" Hom Klai (Peninsular)

*** A. *odoratissima* Bl.

"ประยงค์ป่า" Prayong paa (Central), "สังเครียด" Sangkhriat (Nakhon Si Thammarat), "สังเครียดเลือด" Sangkhriat lueat, "สังเครียดหลังขาว" Sangkhriat langkhaao (Trang)

*** A. *palembanica* Miq.

"สังเครียดหยามฝ้าย" Sangkhriat yaamfai (Trang)

* A. *paniculata* Kurz

*** *Aglaia pirifera* Hance
"คังคาว" Khang Khaao, "ค้างคาว" Khaang Khaao (Northeastern, Eastern), "จังกรู" Chang-kruu (Khmer-Chanthaburi), "ฮางคาว" Haang Khaao (Udon Thani, Chaiyaphum)

*** A. *pyramidata* Hance
"จันทน์ชะมด" Chanchamot (Chanthaburi)

* A. *quocensis* Pierre

* A. *submonophylla* Miq.

* A. *tenuicaulis* Hiern

** A. *trichostemon* Dc.
"สังเครียดลาย" Sang Khriat laai (Trang)

(* reported by Craib, ** reported by Smitinand, *** reported by both Craib and Smitinand)

The following pages contain literature surveys about the medicinal uses and poisonous properties of the plants in the family Meliaceae. In 1937, Volkonsky (7) studied the leaves of *Melia azedarach* L. for insecticidal effect, it was noticed that some types of the insects have never touched the leaves of this plant. Other plants sprinkled with extract of *Melia* leaves are equally protected against locust. In 1939, Carratala (8) reported the death of a 3 year-old child some days after eating the fruit of *Melia azedarach* L. An aqueous extract of the fruit when injected into rabbits (1 ml sc) produced dyspnea, tremor, convulsions and death on the following day. When given by mouth, it also produced gastrointestinal symptoms. One year later, Guevara (9) performed the pharmacodynamic

study of lansone fruit (*Lansium domesticum* Jack) and found that the peel of fruit contains a resin which checks diarrhea and relieves intestinal spasm. A dilute aqueous suspension of the resin inhibits the contraction of rabbit intestine *in vitro*. In 1963 Sinha and Gulati (10)studied the seed cake of *Azadirachta indica* Juss. and found that the alcoholic extract of seed cake left after the oil expression was shown repellent action against migratory locusts, the marc was inactive. In 1965 Berndt (11) reported the use of margosa oil from *Azadirachta indica* Juss. in dermatological preparations in Indian Pharmacy. During 1968-1972, Dhar *et al.* (12,13,14) performed the experiments on the biological activity screening of Indian plants including plants in family Meliaceae. The results were summarized in Table I.

Table I The Biological Activity Screening of Some Meliaceous Plants

Plant	Part	Activity observed	Reference
Aglaia odoratissima Bl.	Px	anticancer	14
Amoora wallichii King	St	anthelmintic antiviral anticancer	12
Aphanamixis polystachya (Wall.) Parker	St	anticancer	12
Cedrela microcarpa C.DC.	Px	CNS effect	14
C. toona Roxb.	Sb	spasmogenic anticancer	12

Table I (Continued)

Plant	Part	Activity observed	Reference
Cedrela toona Roxb.	Lf	antiprotozoa hypoglycemic spasmogenic CNS effect	12
Cipadessa fruticosa Bl.	Px	spasmogenic	13
Dysoxylum binectariferum Hook.f.	Px	CNS effect	14
D. procerum Hiern	Px	-	14
Melia azedarach L.	Sb	antiviral spasmogenic anticancer	13

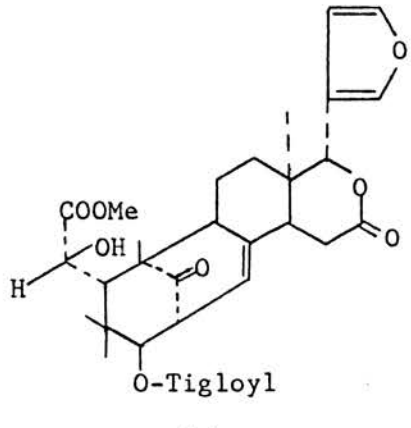
Px = plant excluding root, St = stem, Sb = Stem Bark, Lf = leaves.

In 1973, Martinez Nadal *et al.* (15) investigated the toxicological effects of active principles of *Swietenia mahogani* Jacq. and found that the precipitates obtained from the bark by diethyl ether extraction, petroleum ether extraction and an oil obtained from the seeds were sufficiently toxic to *Drosophila melanogaster* Meign. to warrant their use as pesticides. The rate of mortality was proportional to the concentration of active materials.

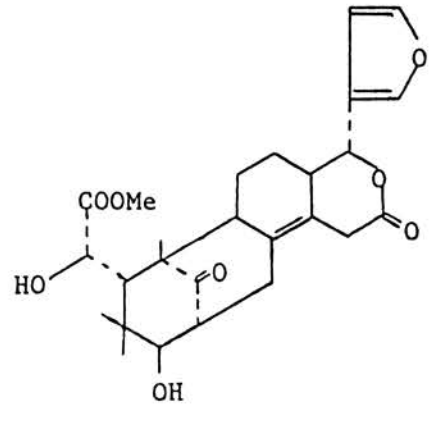
The active materials were apparently non toxic to humans. In 1977 Qadri and Rao (16) studied the effect of combining some indigenous plant seed extracts against household insects and found that neem (*Azadirachta indica* Juss.) extract showed synergistic action in combination with custard apple seed (*Annona reticulata* L.) extract against pulse beetle, lesser grain borer, and house-fly. This combination was half as toxic against lesser grain borer and equitoxic to DDT against house-fly.

Further chemical characterization of this family has been reported as follows :

In 1937, Volkonsky (7) studied the leaves of *Melia azedarach* L. and reported the presence of the alkaloid paraisine. In 1951, Guha-Sircar and Chakravarty (17) studied the seed of *Swietenia macrophylla* King. From this study, two crystalline substances were isolated, one non-bitter which they named swietenine, the other bitter named swietenolide. The structure and stereochemistry of swietenine (I) and swietenolide (II) were determined later in 1965 by Connolly *et al.* (18,19).

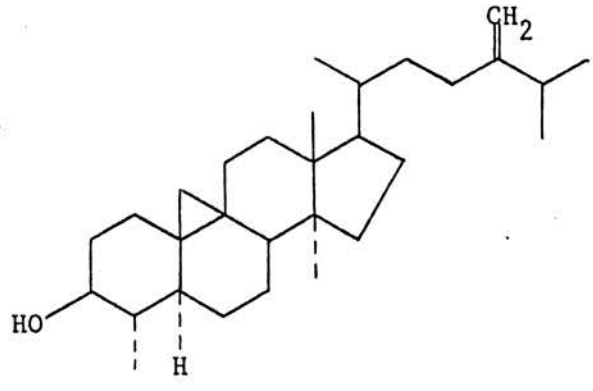


(I)



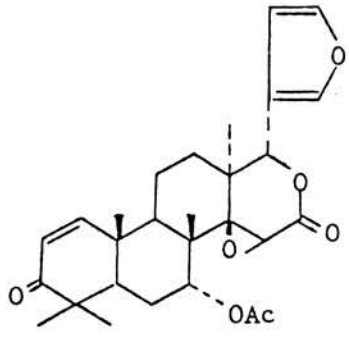
(II)

In 1959, Marin *et al.* (20) reported the isolation of cycloeucalenol (III) from the unsaponifiable fraction of the oil from West Indian mahogany wood (*Swietenia mahogani* Jacq.)

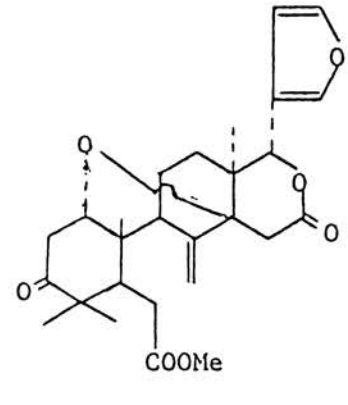


(III)

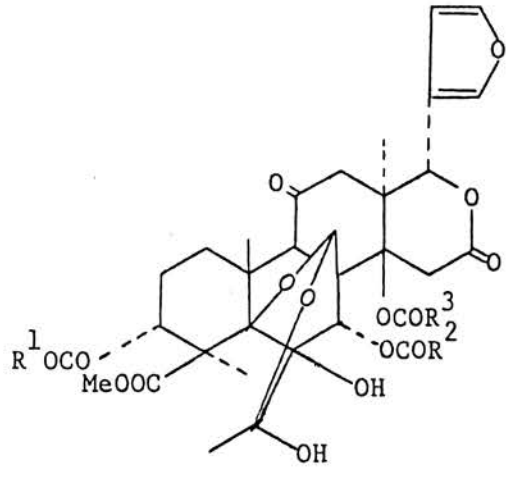
In 1960 Akisanya and co-workers (21) investigated some species of the genus *Entandrophragma* and the following results were reported. From the timber of *E. angolense* (Welw.) C.DC., two triterpenes, gedunin (IV), the structure was subsequently characterized by Akisanya *et al.* (22), and methyl angolensate (V) were reported. Another triterpene, entandrophragmin (VI), was isolated from *E. cylindricum* Spraque, of which structure was suggested by Taylor and Wragg (23).



(IV)



(V)

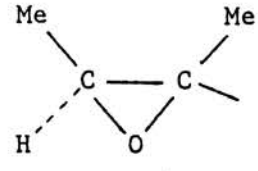


(VI)

R^1 = Me_2CH-

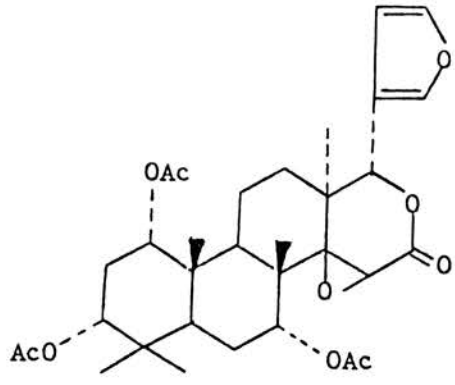
R^2 = MeEtCH—

R^3 =



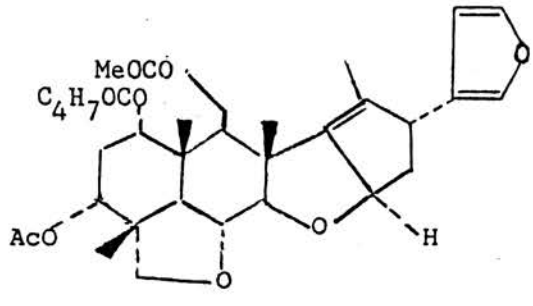
In addition, gedunin was also obtained from *Entandrophragma delevoyi* De Wild. and *Xylocarpus granatum* Koen. as well in 1965 (24). Besides these, there were reports on the isolation of methyl angolensate (V) from the heartwood of *Cedrela odorata* L. (25) and the seed of *Swietenia mahogani* Jacq. (26).

In 1962, a limonoid called khivorin (VII) was isolated from the heartwood of *Khaya ivorensis* A. Chevalier by Bevan *et al.* (27).



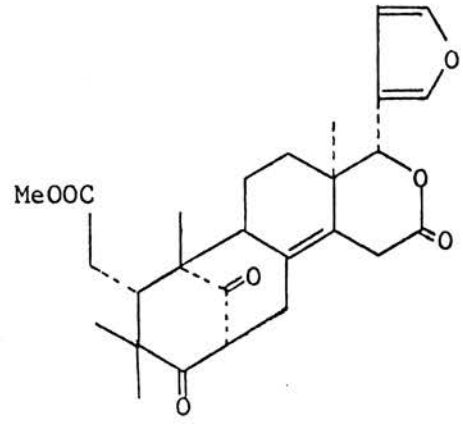
(VII)

In 1964, Henderson *et al.* (28) investigated the seed oil of *Melia azedarach* L. and found the presence of triterpenoid, salannin (VIII). Five years later, this substance was isolated from *Melia dubia* Cov. by Silva *et al.* (29).



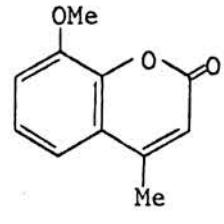
(VIII)

In 1965, a crystalline lactone called mexicanolide (IX) was isolated from *Cedrela mexicana* M. Roem. by Connolly *et al.* (30) and the constitution of this structure was proved by the same authors.



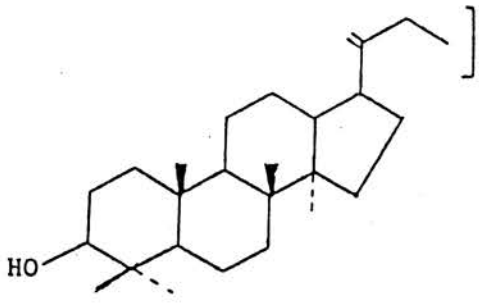
(IX)

In the same year, Bevan and Ekong (31) extracted two specimens of *Ekebergia senegalensis* A. Juss. from the Plateau Province of Northern Nigeria and found that the major crystalline product was 8-methoxy-4-methyl coumarin (X).

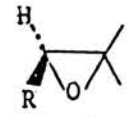


(X)

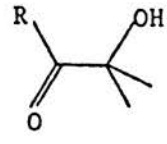
In addition, Shiengthong *et al.* (32) studied the leaves of *Aglaia odorata* Lour. and reported the presence of tetracyclic triterpene, aglaiol (XI). The configuration of aglaiol was further determined by Boar and Damps (33,34). The leaves of the same plant were further investigated in 1974 (35) and the presence of two more tetracyclic triterpenes, aglaiondiol (XII) and aglaitriol (XIII) were reported.



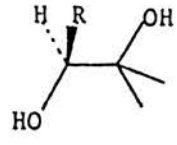
(XI)



(XII)

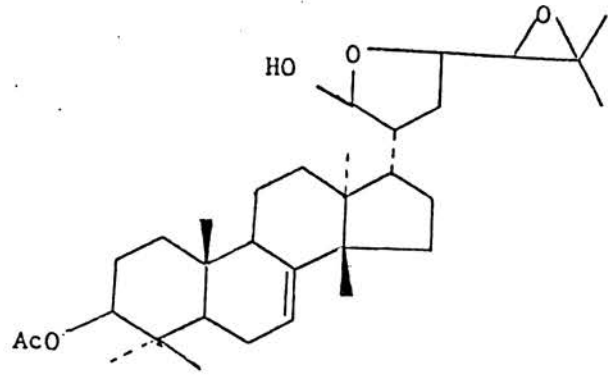


(XIII)



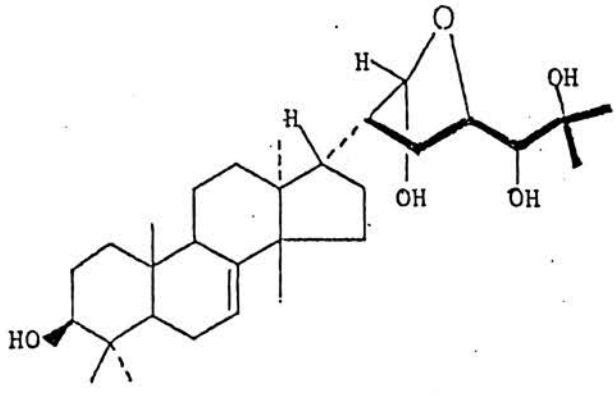
The year 1967 was one of the most exciting year in phytochemical studies of family Meliaceae. Several activities were done and reported as follows :

Chatterjee and Kundu (36) examined the fruits of *Aphanamixis polystachya* (Wall.) Parker and reported a new triterpene called aphanamixin (XIV) from the petroleum ether extract.

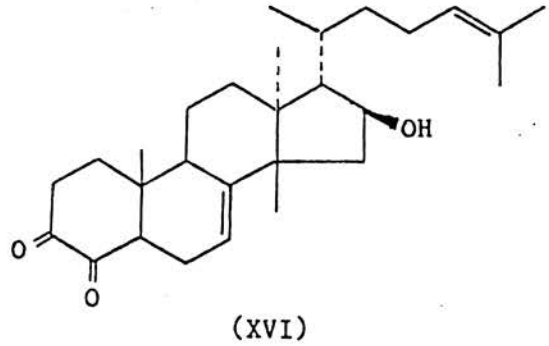


(XIV)

Lavie and co-workers (37) obtained a crystalline compound with antifeeding activity, identified as meliantrol (XV) from the fruit of *Azadirachta indica* Juss. while a new triterpene of the euphane (20, β-H) series, kulinone (XVI) was isolated from the bark of *Melia azedarach* L. by Chang and Chiang (38).

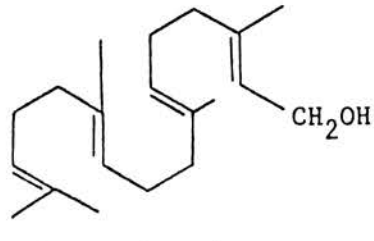


(XV)



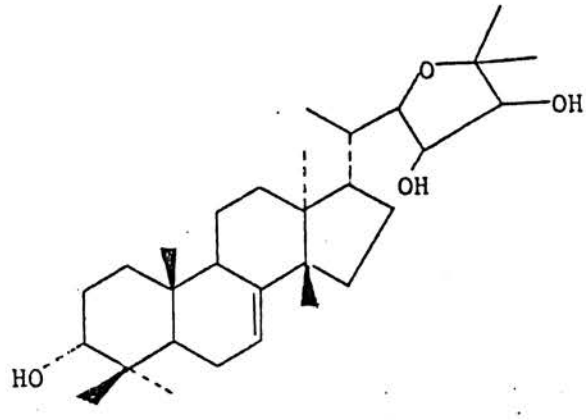
(XVI)

Nagasampagi *et al.* (39) extracted the wood of *Cedrela toona* Robx. and reported the presence of geranylgeraniol (XVII).



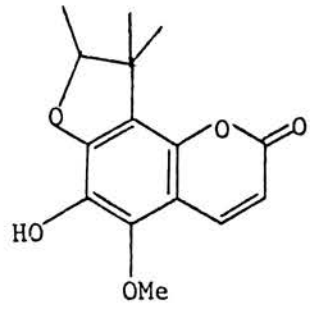
(XVII)

Connolly and co-workers (40)isolated mexicanol (XVIII) from the heartwood of *Cedrela glaziovii* C.DC. and *C. mexicana* M.Roem.



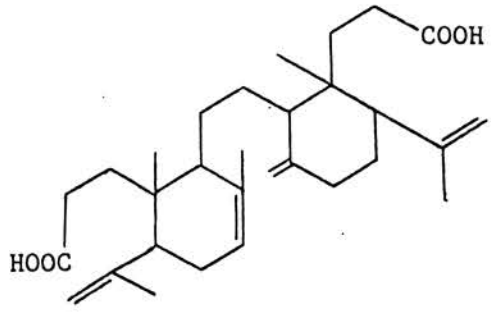
(XVIII)

McCabe *et al.* (41) obtained nieshoutol (XIX) from the heartwood of *Ptaeroxylon obliquum* (Thunb.) Radlk. The structure was later confirmed by Murray and Ballantyne (42).



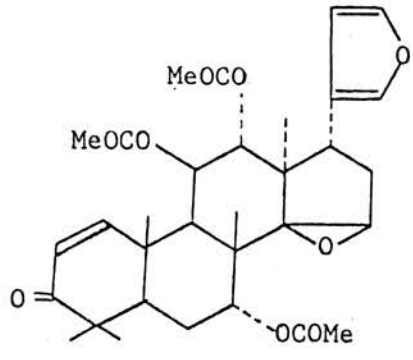
(XIX)

Kiang *et al.* (43) examined the peel of the fruit of *Lansium domesticum* Jack and reported the isolation of triterpenoid acid which they named lansic acid (XX).



(XX)

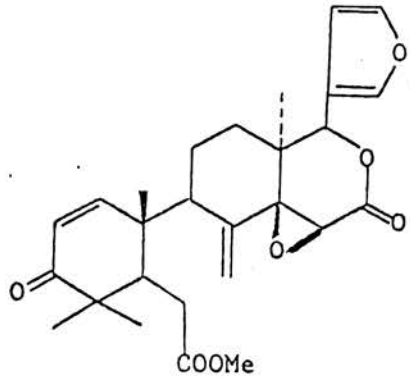
Okorie and Taylor (44) extracted the timber of *Trichillia heudelottii* Planch. ex Oliv. and reported the presence of heudelottin (XXI).



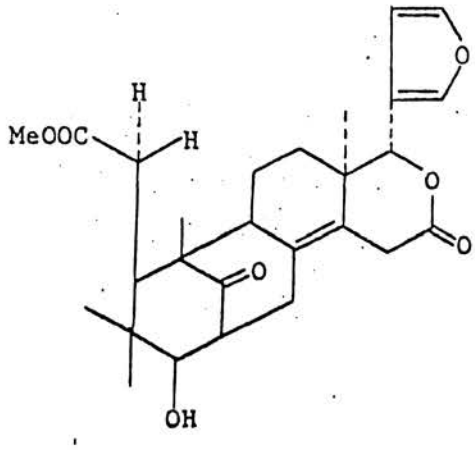
(XXI)

The history of phytochemical investigation of family Meliaceae bacame more interesting when it got to the year 1968 and several phytochemical studies were reported at that time.

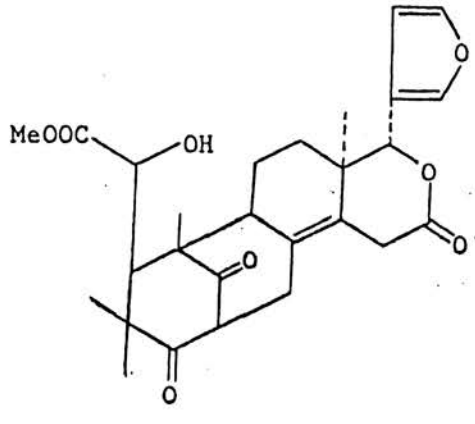
Okorie and Taylor (45) examined the seed of *Cedrela odorata* L. and reported the presence of known limonoids, mexicanolide (IX), andirobin (XXII) and 6-deoxyswietenolide (XXIII), together with a new compound which had been identified as 6-hydroxymexicanolide (XXIV).



(XXII)

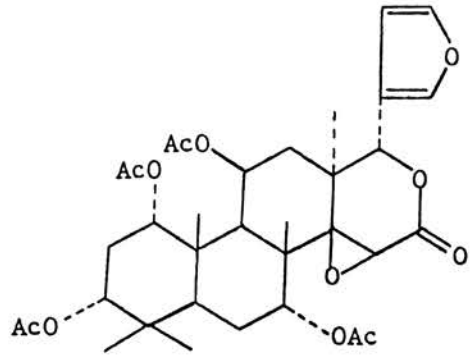


(XXIII)



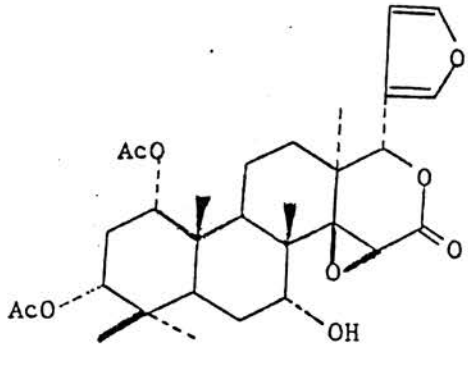
(XXIV)

Taylor (46) extracted the timber of *Khaya madagascariensis* Jumelle et Perrier and found that the main constituent of this extract was 11-β-acetoxykhivorin (XXV).

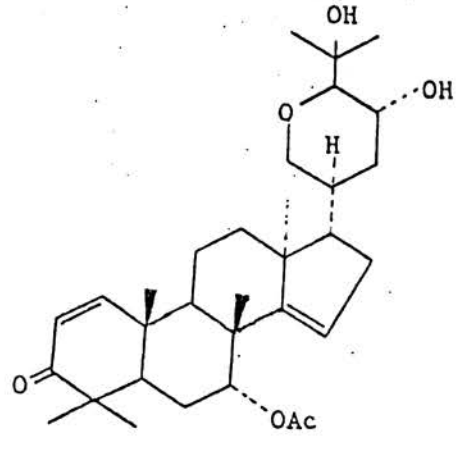


(XXV)

Connolly *et al.* (47) obtained grandifolione (XXVI) from the trunk wood of *Khaya grandifoliola* C.DC. Three years later, the presence of grandifoliolenone (XXVII), from the same plant, was reported by Connolly and McCrindle (48).



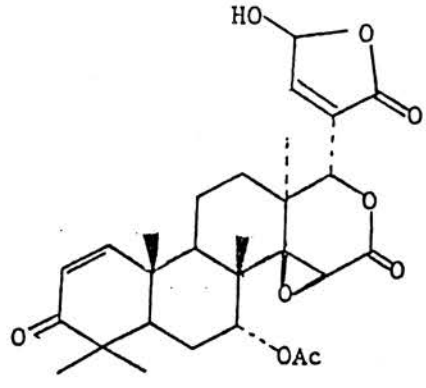
(XXVI)



(XXVII)

In 1969, Johns and Lamberton (49) performed phytochemical screening of some New Guinea plants for akaloids and found positive results in several species of *Aglaia*. The leaves of one specimen were then further investigated but the result showed the presence of tiglamide as a major constituent in the crude alkaloid fraction.

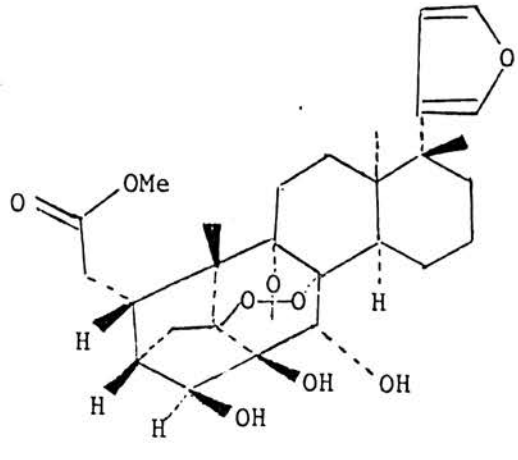
Burke and co-workers (50) examined the benzene extract of a specimen of *Cedrela odorata* L. growing in the Red Hills area of St. Andrew, Jamaica and reported the isolation of gedunin (IV) together with a non-furanoid tetranortriterpenoid, photogedunin (XXVIII).



(XXVIII)

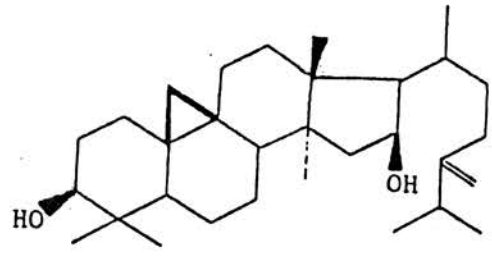
In 1971, Several phytochemical studies of some Meliaceous plants were done and the results were reported as follows :

Arndt and Baarschers (51) extracted the bark of *Entandrophragma caudatum* Spraque by the conventional alkaloid extraction method and obtained a meliacin named phragmalin (XXIX).



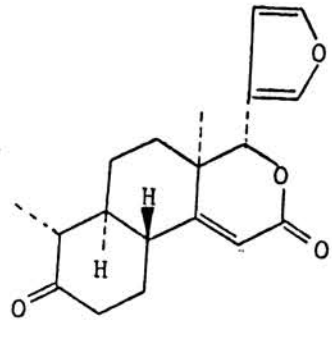
(XXIX)

Chakraborty and Basak (52) performed phytochemical studies on the leaves of *Swietenia mahogani* Jacq. and reported the isolation of cyclomahogenol (XXX).



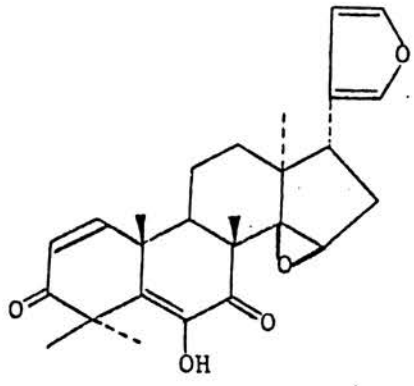
(XXX)

Chan *et al.* (53) investigated the specimen of *Cedrela odorata* L., obtained from St. Elizabeth, Jamaica, and reported the presence of a new compound, odoratin (XXXI).

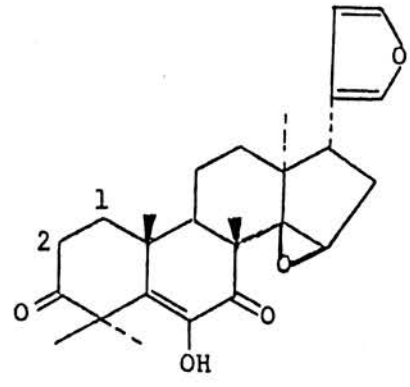


(XXXI)

Chatterjee and co-workers (54) reported the presence of cedrelone (XXXII), 1,2-dihydrocedrelone (XXXIII) in the seeds of *Cedrela toona* Roxb.

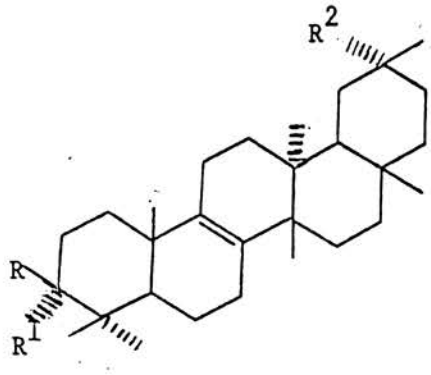


(XXXII)



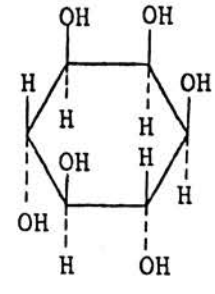
(XXXIII)

In 1972 Sim and Lee (55) investigated the constituents of the fruit hulls of *Sandoricum indicum* Cav. and reported the presence of bryonolic acid (XXXIV),bryononic acid (XXXV),mesoinositol (XXXVI) and mucic acid (XXXVII).

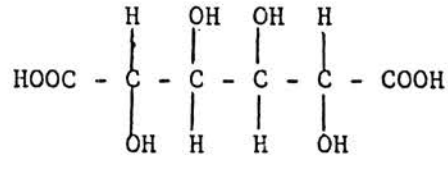


(XXXIV) R = OH; R^1 = H; R^2 = COOH

(XXXV) RR^1 = O; R^2 = COOH



(XXXVI)



(XXXVII)

During 1972-1975, the alkaloid screening of Meliaceous plants were undertaken by Farnsworth *et al.* and the results were shown in Table II.

Table II Alkaloid Screening of Some Meliaceous Plants

Plant	Part (s)	Result	Reference
Aglaia sp.	Lf, Sb	-	58
Aglaia sp.	Lf	++	56
Azadirachta indica Juss.	Lf, Fl, Rb St, Sb, Wr Ws	-	60
A. indica Juss.	Lf	+	58
A. indica Juss.	Sd, Fr	+	59
Cedrela toona Roxb.	Sd	+	58
Chickrassia tabularis A. Juss.	Sd	-	59
Dysoxylum chisochita	Lf, St	-	59
D. pettigrewianum F.M. Baill.	Sb	+	57
D. pettigrewianum F.M. Baill.	Sb	-	56
D. rufum Benth.	Sb	-	56
D. spectabile Hook.f.	St, Lf	-	59

Table II (Continued)

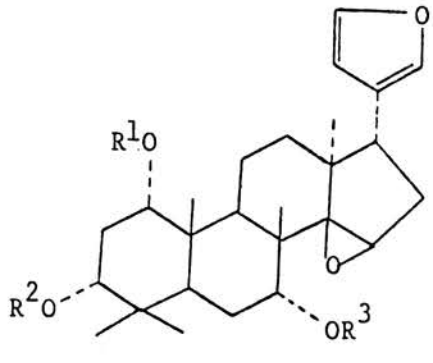
Plant	Part (s)	Result	Reference
Ekebergia capensis Sparrman	Fr	+	56
E. capensis Sparrman	St, Lf, Fl	-	59
E. capensis Sparrman	Lf, Ws	-	56
Guarea trichiloides L.	St, Lf, Fl	-	60
G. trichiloides L.	St, Lf, Fr	-	59
Lansium domesticum Jack.	St, Lf	-	59
Melia azedarach L.	Sd	++	59
M. azedarach L.	Ws, Sb	-	60
M. azedarach L. (U.S.A.)	St, Lf, Fr	++	58
M. azedarach L. (Isallael)	Lf	-	58
M. dubia Cav.	Sb	-	56
M. volkensii Gurke	Lf, St, Ws	+	60
M. volkensii Gurke	Rt	-	60
Owenia acidula F. Muell.	Lf	-	56
Trichilia coliman DC.	Tw, Lf, Fr	-	60
T. dregeana Sond.	Ws, Sb	-	56

Table II (Continued)

Plant	Part (s)	Result	Reference
Trichilia havanensis Jacq.	St, Lf, Fr	-	58
T. pallida Sw.	St, Lf	+	57
Turraea mombassana Hiern	Ws, Sb	-	60

(+ = positive test, - = negative test, Fl = Flower, Fr = Fruit, Lf = Leaf, Rb = Root bark, Rt = root, Sb = Stem bark, Sd = seed, St = Stem, Tw = Twig, Wr = root wood, Ws = Stem wood)

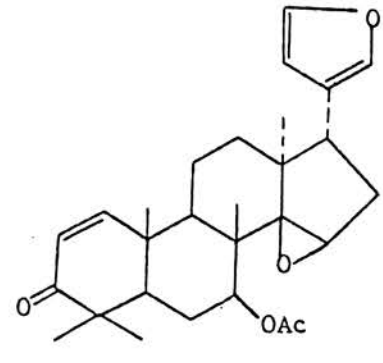
In 1973, Chan *et al.* (61) investigated the ripe fruit of *Trichilia havanensis* Jacq. and reported the presence of four new tetranortriterpenes called havanensin triacetate (XXXVIII), havanensin 3,7-diacetate (XXXIX), havanensin 1,7-diacetate (XL) and trichilenone acetate (XLI).



(XXXVIII) $R^1 = R^2 = R^3 = Ac$

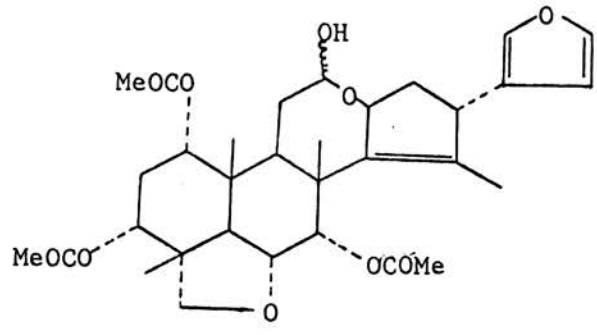
(XXXIX) $R^1 = H$, $R^2 = R^3 = Ac$

(XL) $R^2 = H$, $R^1 = R^3 = Ac$



(XLI)

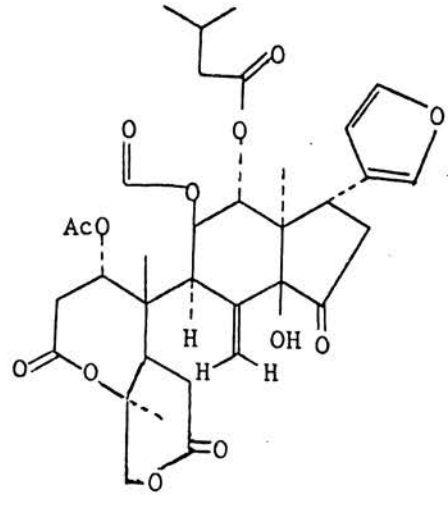
In the same year Adesida and Okorie (62) reported the isolation of a new limonoid, heudebolin (XLII) from the bark of *Trichilia heudelotii* Planch. ex. Oliv.



(XLII)

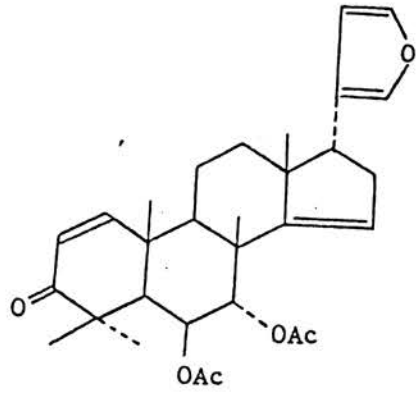
In 1976, several phytochemical studies of some meliaceous plants were performed and reported as follows :

Connolly (63) investigated the seeds of *Aphanamixis polystacha* (Wall.) Parker and reported the presence of limonoid compound called rohitukin (XLIII).



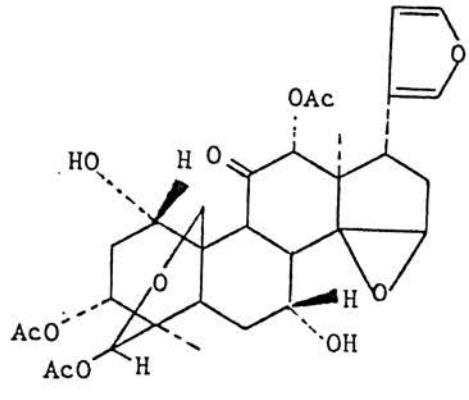
(XLIII)

Singh *et al.* (64) extracted the fruits of *Dysoxylum binectariferum* Hook.f. and obtained a new tetranortriterpene of the meliacin group, dysobinin (XLIV). This substance showed general CNS-depressant action and mild antiinflammatory activity.



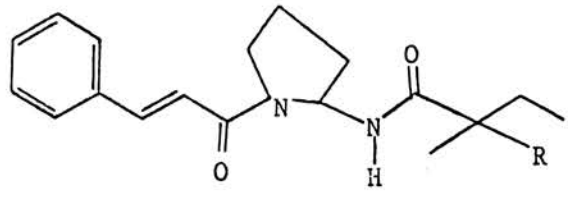
(XLIV)

Ochi and Kotsuki (65) reported the presence of a new limonoid, sendanin (XLV) in the bark of *Melia azedarach* Linn. var. *japonica* Makino.



(XLV)

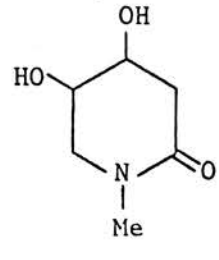
The alkaloid chemistry in the family Meliaceae became more interesting in 1979 when Shiengthong *et al.* (66) isolated two new alkaloids, odorine (XLVI) and odorinol (XLVII), from the leaves of *Aglaia odorata* Lour.



(XLVI) R = H

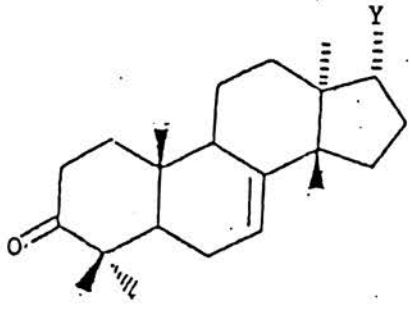
(XLVII) R = OH

This result was supported by the work of Purushothaman *et al.* (67) on the isolation of roxburghiline (XLVI) which is subsequently found to be identical with odorine, from the closly related species, *Aglaia roxburghiana* Hiern (Syn. A. *odoratissima* Bl.). Two years later, Techasauvapak (68) worked on the flower specimen of A. *odorata* Lour. and reported the isolation of a new alkaloid called odoram (XLVIII).



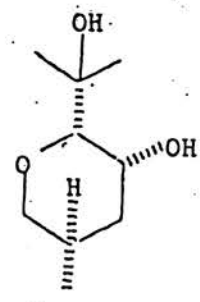
(XLVIII)

In 1980, Jolad *et al.* (69) reported the isolation of a new triterpenoid, hispidone (XLIX) and a known triterpenoid bourjotinolone A (L) from *Trichilia hispida* Penning.

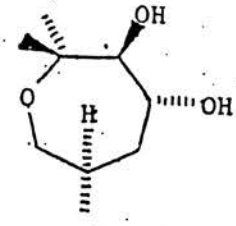


(XLIX) Y = R^2

(L) Y = R^1



R^1

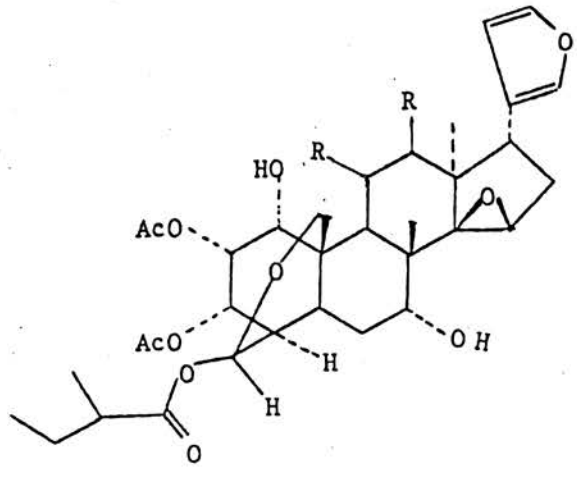


R^2

In 1981, Pillai and Santhakumari (70) reported the pharmacological study of nimbidin a compound isolated from the oil of *Azadirachta indica* Juss. seeds, in comparison with two standard anti-inflammatory agents, phenylbutazone, a non-steroid and prednisolone, a steroid; against various experimental models of inflammation. The results showed that nimbidin was effective in both acute and chronic phases of inflammation and it was considered as a general anti-inflammatory agent.

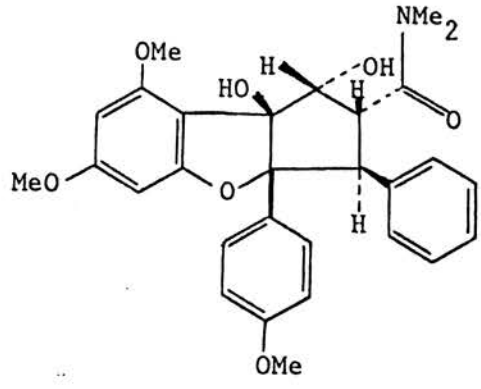
In the same year, Nakatani *et al.* (71) studied the root bark of the East African plant *Trichilia roka* P.Br. and isolated a series

of new limonoids, trichilins (LI) which are antifeedants against the North American pest insects, the southern army worm [*Spodoptera eridania* (Cramer)] and the Mexican bean beetle (*Epilachna varivestis* Mulsant). One year later, Kubo and Klocke (72) studied the fresh fruit of this plant and reported the presence of sendanin (XLV) a limonoid, bearing an insect growth inhibitory activity against 4 important cotton insect pests [*Pectinophora gossypiella* (Saunder), *Heliothis zea* (Boddie), *H. virescens* (Fabricious), *Spodoptera frugiperda* (J.E. Smith)].



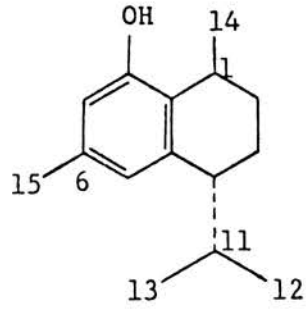
(LI)

In 1982, King *et al.* (73) worked on the specimen of *Aglaia elliptifolia* Merr. and obtained a novel 1*H*, -2,3,3a,8b-tetrahydrocyclopenta [*b*] benzofuran, rocaglamide (LII) with significant antileukemic activity against P 388 lymphocytic leukemia in CDF_1 mice.



(LII)

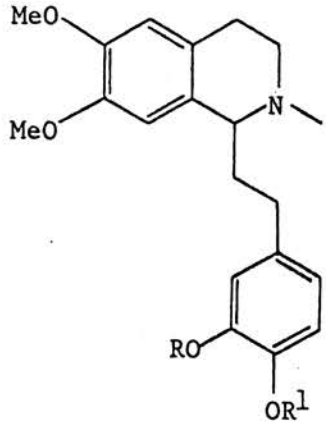
In 1983, Nishizawa *et al.* (74) extracted the seeds of *Dysoxylum acutangulum* Miq. and *Dysoxylum alliaceum* Bl. obtained a fish poison principle, (+)-8-hydroxycalamenene (LIII). The compound showed a significant toxicity against fish and also antibacterial activity.



(LIII)

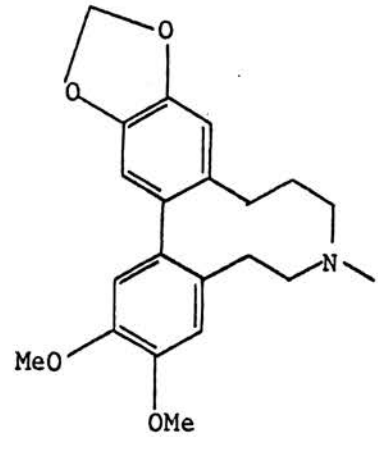
In the same year Aladesanmi *et al.* (75) studied the leaves of a Fiji plant, *Dysoxylum lenticellare* Gillespie, and the presence of five alkaloids were reported, of these dysoxyline (LIV)

S-(+)-homolaudanosine (LV) and dysazecine (LVI) are new natural products. The other two known alkaloids are 3-epischelhammericine (LVII) and 2,7-dihydrohomoerysotrine (LVIII). The continuation of this work was performed by the same authors in 1984 (76) and the isolation of two new homoerythrina alkaloids, dyshomerythrine (LIX) and 3-epi-12 hydroxyschelhammericine (LX) were reported.

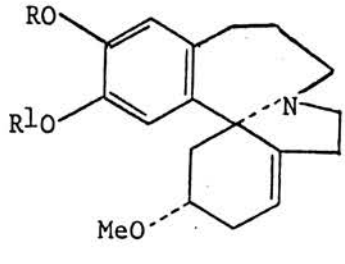


(LIV) R, R^1 = $-CH_2-$

(LV) R = R^1 = -Me

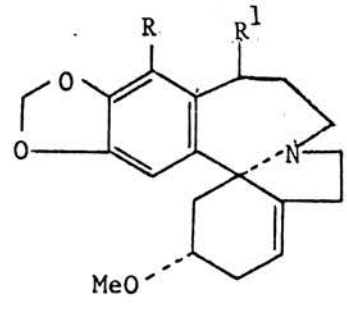


(LVI)



(LVII) R, R^1 = $-CH_2-$

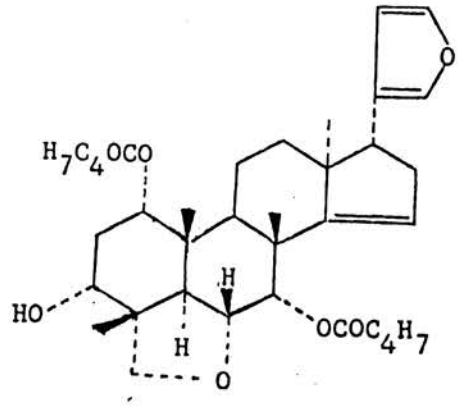
(LVIII) R = R^1 = -Me



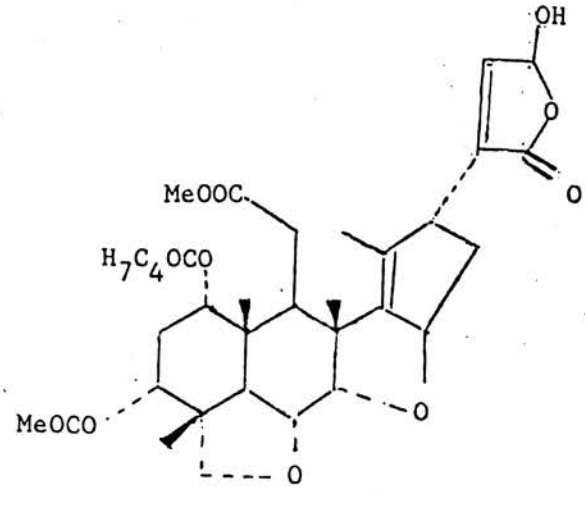
(LIX) R = -OMe R^1 = H

(LX) R = H R^1 = OH

In 1984, Purushothaman *et al.* (77) reported the isolation of two new tetranortriterpenoids, compositin (LXI) and compositolide (LXII) from *Melia dubia* Cav.

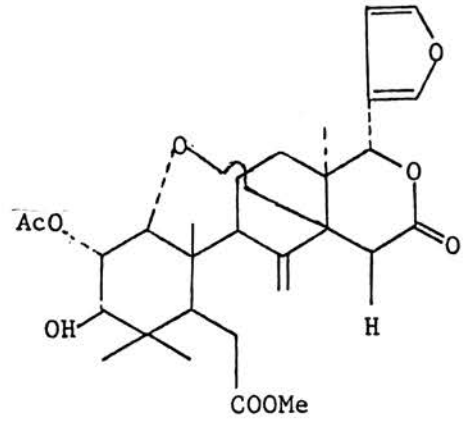


(LXI)



(LXII)

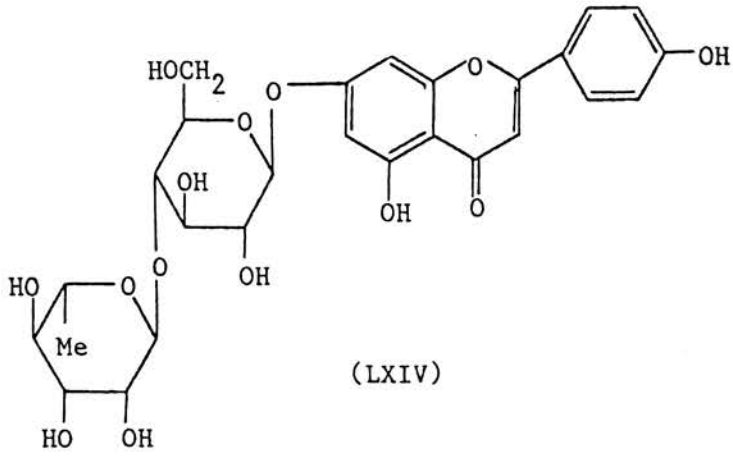
In the same year, Taylor and Taylor (78) investigated the seed chemistry of *Ekebergia pterophylla* (C.DC.) Hofm. and obtained a limonoid, named E.P. 1 (LXIII).



(LXIII)

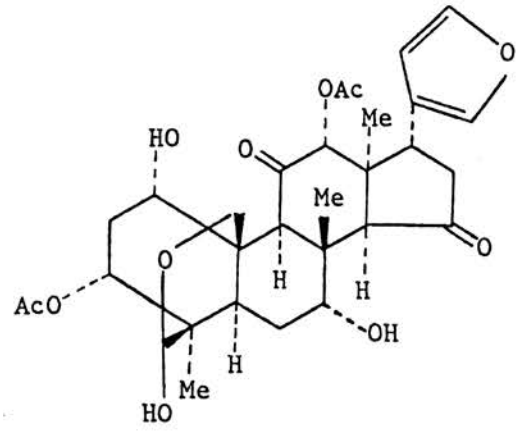
In 1985, Several phytochemical studies of some meliaceous plants were done and the results were reported as follows :

Mamta and Santosh (79) reported the isolation of a new flavone glycoside, 4',5-dihydroxyflavone-7-O-α-rhamnopyranosyl- (1→4)-β-D-glucopyranoside (LXIV) from the stem bark of *Melia azedarach* L.



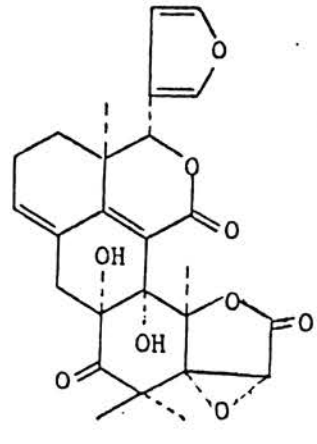
(LXIV)

Jingxi and Axing (80) reported the presence of a new compound, isochuanliansu (LXV) from the bark of traditional chinese medicine, *Melia toosendan* Sieb. et Zucc. and *Melia azedarach* L.



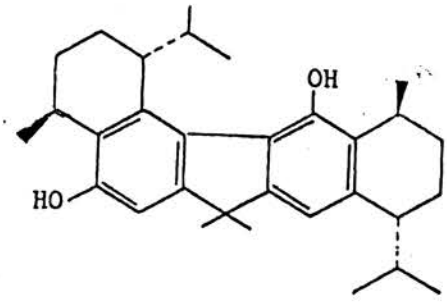
(LXV)

Nishizawa *et al.* (81) extracted the seeds of *Lansium domesticum* Jack and reported the presence of a bitter principle, named dukunolide A (LXVI).



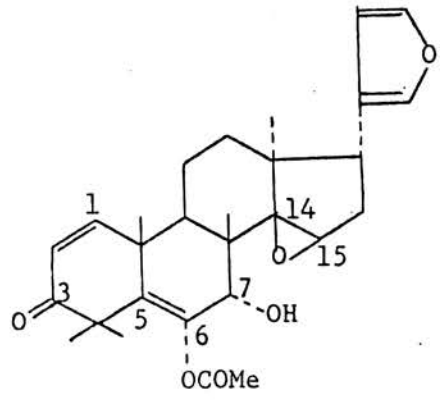
(LXVI)

In addition, Nishizawa and another group of co-workers (82) studied a local plant from Indonesia, *Dysoxylum alliaceum* Bl. and reported the presence of a new unsymmetrical dimeric sesquiterpene named bicalamenene (LXVII).

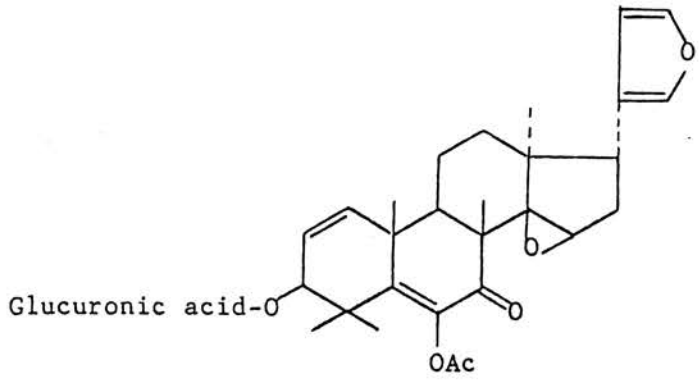


(LXVII)

Srivastava and Gupta (83) reported the presence of two new compounds, one is limonoid, 6-acetoxy-7α-hydroxy-3-oxo-14β,15β-epoxymeliac-1,5-diene (LXVIII) and the other one is limonoid glycoside, 6-acetoxy-3β-hydroxy-7-oxo-14β,15β-epoxymeliac-1, 5-diene-3-O-β-D glucuronopyranoside (LXIX) from the roots of *Melia azedarach* L.

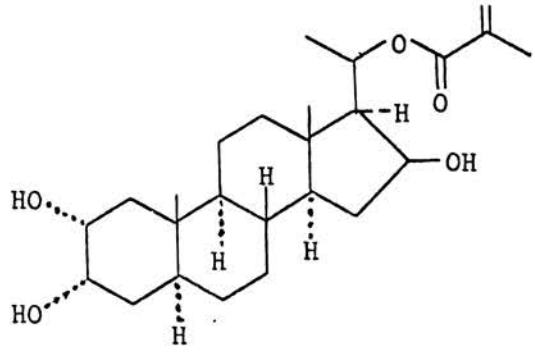


(LXVIII)



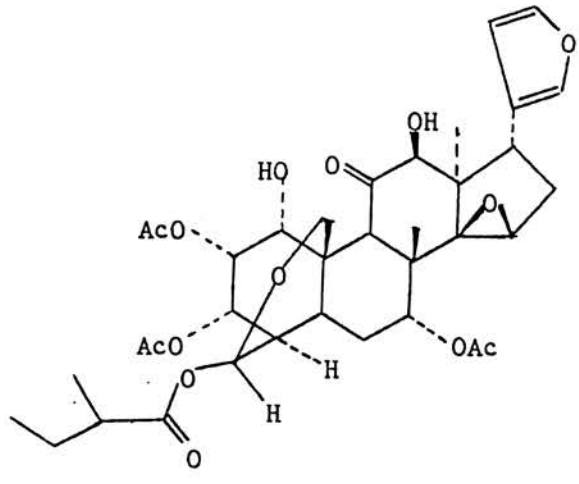
(LXIX)

Nakatani *et al.* (84) investigated the root bark of *Melia azedarach* L. var. *japonica* Makino and reported the presence of a new steroid ester, azedarachol (LXX) which showed anti-feedant activity against the larvae of the insect pest *Ajrotis sejetum* Denis.



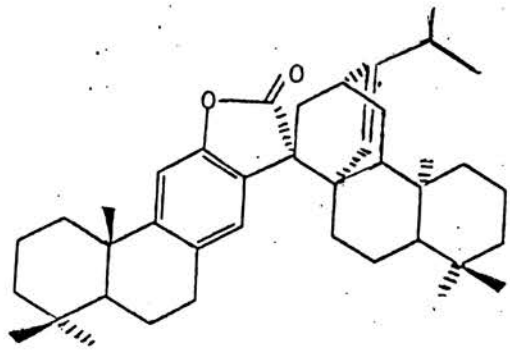
(LXX)

In addition, Nakatani and another group of co-workers (85) reported the isolation of a new limonoid called 7-acetyltrichilin A (LXXI) from the root bark of *Trichilia roka* P.Br. This substance is an antifeedant against North American and Japanese pest insects.



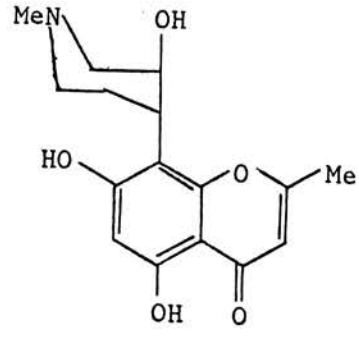
(LXXI)

Kelley *et al.* (86) investigated pentane soluble extract of *Dysoxylum lenticellare* Gillespie leaves, and reported the isolation of a new bis-diterpene called ferrubietolide (LXXII).



(LXXII)

The recent work on meliaceous plant is the work of Sujata *et al.* (87) on the isolation of chromone alkaloid (LXXIII) from the trunk, root bark, leaves and the other parts of *Dysoxylum binectariferum* Hook.f. This substance and its additional salts showed excellent analgetic and immunomodulating activity *in vivo* and *in vitro*



(LXXIII)

It was the purpose of this investigation to study the chemical constituents of the stem bark of *Aglaia pirifera* Hance. The result may prove that the main constituents of the stem bark were in fact a sterol or a triterpenoid, and it was not some other group of compounds that may give false positive result with Liebermann-Burchard's test. Moreover, the chemical characterization of this plant may provide valuable information in the future in the field of chemotaxonomy.