

Additional Information on "Scientific Research on Noni Fruit" from study printed on University of Hawaii website.

1

AU - Pong C

TI - PLANT ANTITUMOR AGENTS: THE ISOLATION, STRUCTURE ELUCIDATION AND
MODIFICATION OF ANTHRAQUINONES ISOLATED FROM MORINDA PARVIFOLIA

AB - Bioassay directed fractionation of the active extract of *Morinda parvifolia* resulted in the isolation and characterization of two new anthraquinones, morindaparvin-A and -B, in addition to the known compounds, lucidin-omega-ethylether, lucidin-omega-methylether, alizarin-1-methylether, digiferruginol, 1-hydroxy-6 or 7- hydroxymethylanthraquinone and 2-hydroxymethylanthraquinone. Syntheses of morindaparvin-A, -B and other known anthraquinones were successfully achieved for further structure proof. Most of these anthraquinones isolated from *M parvifolia* showed cytotoxic activity in KB cells. Compounds, such as morindaparvin-A, alizarin-1- methylether and 2-hydroxymethylanthraquinone also showed anti-leukemic activity against P-388 lymphocytic leukemia cell proliferation in vivo. Several synthetic analogues of these naturally occurring anthraquinones were designed and synthesized for possible enhancement of antitumor activity. A few compounds showed significant activity in the P-388 lymphocytic leukemia screening. (Author abstract)

MH - Animal

MH - Anthraquinones/CS/*IP/PD

MH - Antineoplastic Agents/CS

MH - Antineoplastic Agents, Phytogetic/*IP/PD

MH - Cell Survival/DE

MH - Drug Screening

MH - Leukemia P388/PA

MH - Mice

MH - Cancerlit File

PT - Thesis

AD - The Univ. of North Carolina at Chapel Hill

SO - Diss Abstr Int (Sci) 1984;44(12):3796-B 1984

DP - 1984

TA - Diss Abstr Int (Sci)

PG - 3796-B 1984

IP - 12

VI - 44

UI - 85604286

2

AU - Hirazumi A

AU - Furusawa E

AU - Chou SC

AU - Hokama Y

TI - Anticancer activity of *Morinda citrifolia* against Lewis lung carcinoma and Rauscher retroviral leukemia in mice (Meeting abstract). AB - *Morinda citrifolia* (noni) is a traditional Hawaiian herb.

Ethanol precipitation of the fruit juice of the noni (noni-ppt) has been shown to be therapeutically active against intraperitoneally (ip) implanted Lewis lung carcinoma (LLC) in syngeneic C57BL/6 mice. Noni-ppt prolonged the mean survival time (MST) of LLC implanted mice by 123% (MST of control = 14.7 days and treated = 32.7 days, n=34) at a 1 mg dose injected ip for a total of 5 injections. Concomitant treatment with immunosuppressive agents such as 2 chloroadenosine or cyclosporine resulted in the abrogation of the antitumor activity of the noni-ppt, suggesting the antitumor activity acts via activation of host immune system. Noni-ppt was essentially noncytotoxic in KB cell cultures and significantly stimulated interleukin-1 beta production from human peripheral mononuclear cells. Noni-ppt also demonstrated prophylactic activity against leukemia induced by ip inoculation of plasma containing Rauscher retrovirus, a model of HIV infection, in BALB/c mice as measured by spleen weight. Noni-ppt prevented splenomegaly in BALB/c mice, by 51% (mean spleen weight of control = 0.45g and treated = 0.22g, n = 18) at a single 1 mg dose injected 3 days prior to virus inoculation.

MH - Animal
MH - Carcinoma, Lewis Lung/*PA
MH - Cladribine/PD
MH - Cyclosporine/PD
MH - Drug Antagonism
MH - Immunosuppressive Agents/*PD
MH - Leukemia, Experimental/*PA/VI
MH - Mice
MH - Mice, Inbred BALB C
MH - Mice, Inbred C57BL
MH - Neoplasm Transplantation
MH - Plant Extracts/*PD
MH - Rauscher Virus
MH - Splenomegaly/PC
MH - Cancerlit File
PT - Meeting Abstract
AD - Univ. of Hawaii
AD - John As Burns Sch. of Med.
AD - Honolulu
AD - HI 96822
SO - FASEB J 1995;9(3):A93
DP - 1995
TA - FASEB J
PG - A93 1995
IP - 3
VI - 9
IS - 0892-6638
UI - 96619084
RN - 4291-63-8
RN - 59865-13-3

3

AU - Hirazumi A
AU - Furusawa E

AU - Chou SC
AU - Hokama Y

TI - Anticancer activity of *Morinda citrifolia* against Lewis lung carcinoma and Rauscher retroviral leukemia in mice (Meeting abstract). AB - *Morinda citrifolia* (noni) is a traditional Hawaiian herb. Ethanol precipitation of the fruit juice of the noni (noni-ppt) has been shown to be therapeutically active against intraperitoneally (ip) implanted Lewis lung carcinoma (LLC) in syngeneic C57BL/6 mice. Noni-ppt prolonged the mean survival time (MST) of LLC implanted mice by 123% (MST of control = 14.7 days and treated = 32.7 days, n=34) at a 1 mg dose injected ip for a total of 5 injections. Concomitant treatment with immunosuppressive agents such as 2 chloroadenosine or cyclosporine resulted in the abrogation of the antitumor activity of the noni-ppt, suggesting the antitumor activity acts via activation of host immune system. Noni-ppt was essentially noncytotoxic in KB cell cultures and significantly stimulated interleukin-1 beta production from human peripheral mononuclear cells. Noni-ppt also demonstrated prophylactic activity against leukemia induced by ip inoculation of plasma containing Rauscher retrovirus, a model of HIV infection, in BALB/c mice as measured by spleen weight. Noni-ppt prevented splenomegaly in BALB/c mice, by 51% (mean spleen weight of control = 0.45g and treated = 0.22g, n = 18) at a single 1 mg dose injected 3 days prior to virus inoculation.

MH - Animal
MH - Carcinoma, Lewis Lung/*PA
MH - Cladribine/PD
MH - Cyclosporine/PD
MH - Drug Antagonism
MH - Immunosuppressive Agents/*PD
MH - Leukemia, Experimental/*PA/VI
MH - Mice
MH - Mice, Inbred BALB C
MH - Mice, Inbred C57BL
MH - Neoplasm Transplantation
MH - Plant Extracts/*PD
MH - Rauscher Virus
MH - Splenomegaly/PC
MH - Aidsline File
PT - Abstract
AD - Univ. of Hawaii
AD - John As Burns Sch. of Med.
AD - Honolulu
AD - HI 96822
SO - FASEB J 1995;9(3):A93
DP - 1995
TA - FASEB J
PG - A93 1995
IP - 3
VI - 9
IS - 0892-6638
UI - 96606610
RN - 4291-63-8

RN - 59865-13-3

4

AU - Ganal CA

AU - Hokama Y

TI - The effect of noni fruit extract (*Morinda citrifolia*, Indian mulberry) on thymocytes of BALB/c mouse (Meeting abstract). AB - In recent years, the ripe noni fruit juice has been taken orally by people in the State of Hawaii. The increased interest stems from the rediscovery of the early use of the fruit juice by the Polynesians. The noni juice has been attributed to alleviate the following ailments according to Abbott (La'au Hawaii, Traditional Hawaiian Uses of Plants): menstrual cramps, arthritis, diabetes, gastric ulcers, sprains, poor digestion, cancer and problems associated with high blood pressure. A recent study (Hirazumi et al, Proc AACR, March, 1992) showed noni juice to inhibit the Lewis lung tumors in C57BL/6 mice with no affect on the other tumors in culture (KB, XC, BALB/3T3 and NIH/3T3). In this study, the noni fruit juice was investigated for its mitogenic effect on BALB/c thymus cells. The noni juice was obtained from squashed, semiripe fruits or by leaching from ripe fruits over a period of 2 wk at room temperature. The noni juice was separated into 50% aqueous alcohol soluble and precipitated fractions. The residue (powder) of both fractions showed stimulation of BALB/c thymus cells in the [3H]thymidine analysis. Max stimulation indices of 9 and 8 were obtained for the 50% precipitated and soluble fractions, respectively. Each sephadex gel (SG-200) fraction gave variable peaks at 210, 225, 240, 275, 300 and 350 nm. The active mitogenic principle appeared in the early fractions containing the larger mol wt compounds (greater than or equal to 100,000 D). It is suggested that inhibition of Lewis lung tumors in mice, in part, may have been due to stimulation of the T-cell immune response.

MH - Animal

MH - Diet

MH - Fruit/*

MH - Lung Neoplasms/*PC

MH - Mice

MH - Mice, Inbred Strains

MH - Plant Extracts/*PD

MH - Thymidine/ME

MH - Thymus Gland/CY/*DE

MH - Cancerlit File

PT - Meeting Abstract

AD - Dept. of Pathology

AD - John A. Burns Sch. of Medicine

AD - Univ. of Hawaii

AD - Honolulu

AD - HI 96822

SO - FASEB J 1993;7(4):A866

DP - 1993

TA - FASEB J

PG - A866 1993

IP - 4

VI - 7

UI - 94696949
RN - 50-89-5

5
AU - Makinde JM
AU - Obih PO

TI - Screening of *Morinda lucida* leaf extract for antimalarial action on *Plasmodium berghei berghei* in mice. AB - The leaf extract of *Morinda lucida* collected in August was administered subcutaneously to albino Swiss mice infected with *P. berghei berghei*. The schizontocidal activity on early infection was assessed by administering chloroquine (standard) distilled water or *Morinda lucida* as single daily dose on day 0-3 to infected mice. On day 4 the degree of parasitaemia and percentage was determined in relation to control. Its schizontocidal activity was also observed on an established infection by administering the drugs 72 h after infecting the mice and the degree of parasitaemia was determined daily. The repository action of pyrimethamine was also compared with *Morinda lucida*. On the early infection, the chloroquine equivalent of *Morinda lucida* was found to be 1.0 mg/kg. In established infection a daily increase in parasitaemia was observed in control group while the animals that received chloroquine (5 mg/kg) and 1/6 dilution of the stock of *Morinda lucida* extract showed a sharp fall in parasitaemia from the second day of treatment. For the prophylactic test, 1.2 mg/kg of pyrimethamine and 1/6 dilution of stock of extract produced 80.5% and 70% chemosuppression respectively. It is interesting to note that *Morinda lucida* leaves extract appears to have schizontocidal and repository effects in mice infected with *P.berghei berghei*.

MH - Animal
MH - Antiprotozoal Agents/BL/PD
MH - Chloroquine/AD
MH - Malaria/*DT
MH - Mice
MH - Plant Extracts/*PD
MH - *Plasmodium berghei*/*DE
MH - Pyrimethamine/PD
MH - Medline File
SO - Afr J Med Med Sci 1985 Mar-Jun;14(1-2):59-63
DP - 1985 Mar-Jun
TA - Afr J Med Med Sci
PG - 59-63
IP - 1-2
VI - 14
IS - 0309-3913
UI - 85303772
RN - 54-05-7
RN - 58-14-0

6
AU - Obih PO
AU - Makinde M

AU - Laoye OJ

TI - Investigations of various extracts of *Morinda lucida* for antimalarial actions on *Plasmodium berghei* in mice. AB - *Morinda lucida* extracts, the stem bark, the root bark and the leaves were screened for antimalarial activity in a "4-day schizontocidal test" against a chloroquine-sensitive strain of *P. berghei* in mice. Each extract was administered as a single daily dose on days 0, 1, 2 and 3 to mice that had received an intraperitoneal inoculum of 1×10^7 infected erythrocytes. Each extract produced a degree of suppression of parasitaemia. The most promising result was obtained with chromatographic fractions of the stem bark extracts, the highest dose producing 96.4% suppression of parasitaemia.

MH - Animal

MH - Chloroquine/AD

MH - Comparative Study

MH - Host-Parasite Relations

MH - Malaria/DT

MH - Mice

MH - Plant Extracts/AD/*PD

MH - *Plasmodium berghei*/*DE

MH - Medline File

SO - Afr J Med Med Sci 1985 Mar-Jun;14(1-2):45-9

DP - 1985 Mar-Jun

TA - Afr J Med Med Sci

PG - 45-9

IP - 1-2

VI - 14

IS - 0309-3913

UI - 85303769

RN - 54-05-7

7

AU - Peterson PJ

AU - Butler GW

TI - The occurrence of selenocystathionine in *Morinda reticulata* Benth., a toxic seleniferous plant. AB - [No Abstract Available]

MH - Amino Acids/AN

MH - Plant Poisoning

MH - Plants, Edible/*AN

MH - Selenium/*AN

MH - Medline File

SO - Aust J Biol Sci 1971 Feb;24(1):175-7

DP - 1971 Feb

TA - Aust J Biol Sci

PG - 175-7

IP - 1

VI - 24
IS - 0004-9417
UI - 71164309

8
AU - Hiramatsu T
AU - Imoto M
AU - Koyano T
AU - Umezawa K

TI - Induction of normal phenotypes in ras-transformed cells by damnacanthal from *Morinda citrifolia*.
AB - We have screened tropical plant extracts for substances that induce normal morphology in K-rasts-NRK cells. As a result we isolated an anthraquinone compound, damnacanthal, from the chloroform extract of the root of *Morinda citrifolia*. Damnacanthal induced normal morphology and cytoskeletal structure in K-rasts-NRK cells at the permissive temperature, without changing the amount and localization of Ras. The effect of damnacanthal was reversible, and the compound had no effect on the morphology of RSVts-NRK cells expressing the src oncogene. Thus, damnacanthal is a new inhibitor of ras function.

MH - Animal
MH - Anthraquinones/IP/*PD
MH - Cell Transformation, Neoplastic/*DE/*GE
MH - Cytoskeleton/DE
MH - DNA/BI
MH - Genes, ras/DE/*PH
MH - Macromolecular Systems
MH - Phenotype
MH - Plant Extracts/*PD
MH - Proteins/BI
MH - RNA/BI
MH - Support, Non-U.S. Gov't
MH - Medline File
MH - Cancerlit File
AD - Department of Applied Chemistry
AD - Faculty of Science and Technology
AD - Keio University
AD - Yokohama
AD - Japan.
SO - Cancer Lett 1993 Sep 30;73(2-3):161-6
DP - 1993 Sep 30
TA - Cancer Lett
PG - 161-6
IP - 2-3
VI - 73
IS - 0304-3835
UI - 94036765
RN - 477-84-9

RN - 63231-63-0

RN - 9007-49-2

9

AU - Yoshikawa M

AU - Yamaguchi S

AU - Nishisaka H

AU - Yamahara J

AU - Murakami N

TI - Chemical constituents of Chinese natural medicine, morindae radix, the dried roots of morinda officinalis how.: structures of morindolide and morofficaloside. AB - A new iridoid lactone, morindolide, and a new iridoid glucoside, morofficaloside, have been isolated from a Chinese natural medicine, Morindae Radix, the dried root of Morinda officinalis How. together with a number of known compounds: five anthraquinones, four iridoid glucosides, a monoterpene glycoside, two sterols, an ursane- type triterpene, and a lactone compound. The chemical structures of the new compounds were determined on the basis of chemical and physicochemical evidence.

MH - Acetylation

MH - Chemistry, Physical

MH - Chromatography, Thin Layer

MH - Drugs, Chinese Herbal/*AN

MH - Glucosides/*AN

MH - Lactones/*AN

MH - Nuclear Magnetic Resonance

MH - Plant Roots/*CH

MH - Medline File

AD - Kyoto Pharmaceutical University

AD - Japan.

SO - Chem Pharm Bull (Tokyo) 1995 Sep;43(9):1462-5

DP - 1995 Sep

TA - Chem Pharm Bull (Tokyo)

PG - 1462-5

IP - 9

VI - 43

IS - 0009-2363

UI - 96003354

10

AU - Qiao ZS

AU - Wu H

AU - Su ZW

TI - [Comparison with the pharmacological actions of Morinda officinalis, Damnacanthus officinarum and Schisandra propinqua] AB - There are three kinds of plants, Morinda officinalis (1), Damnacanthus officinarum (2), and Schisandra propinqua (3) whose roots have been used since the ancient time. In this

paper, some of their pharmacological actions that are related to tonifying and invigorating Yang were examined and compared. The body weight, the thymus weight, the amount of leukocyte in the blood, and the continuing swimming times of the young mice could be increased with the oral administration of the water extractions of (1) and (2) (P less than 0.05-0.001). The Rt of M-receptor in the brains of the hypothyroidism mice were decreased after administration of the water extracts of (1) and (2) (P less than 0.05). (1) could also increased the amount of leukocyte in the blood of leukocytopenia mice caused by radiation of gamma-ray (P less than 0.01). (3) has not shown the obvious effects (P greater than 0.05). The results indicate that (1) and (2) have the ability of anti-fatigue, improving the immunological action of the young mice, and reducing the excitability of the para- sympathetic nervous system of the hypothyroidism mice through decreasing the Rt of M-receptor in their brains. All of them did not show acute toxicity, inducing mutation, and sexual hormone like actions.

MH - Animal

MH - Body Weight/DE

MH - Comparative Study

MH - Drugs, Chinese Herbal/*PD/TO

MH - English Abstract

MH - Exertion/DE

MH - Female

MH - Leukocyte Count/DE

MH - Male

MH - Mice

MH - Organ Weight/DE

MH - Oxygen Consumption/DE

MH - Rats

MH - Rats, Inbred Strains

MH - Thymus Gland/AH

MH - Medline File

AD - College of Pharmacy

AD - Second Military Medical University

AD - Shanghai.

SO - Chung Hsi I Chieh Ho Tsa Chih 1991 Jul;11(7):415-7, 390

DP - 1991 Jul

TA - Chung Hsi I Chieh Ho Tsa Chih

PG - 415-7, 390

IP - 7

VI - 11

IS - 0254-9034

UI - 92005969

LA - Chinese

11

AU - Li S

AU - Ouyang Q

AU - Tan X

AU - Shi S

AU - Yao Z

TI - [Chemical constituents of *Morinda officinalis* How] AB - This paper reports the identification of four compounds isolated from the cortex of *Morinda officinalis* growing in Guangdong Province. These compounds are beta-sitosterol (I), 2-methyl-anthraquinone(II), rubiadin-1-methyl ether(III) and 24-ethylcholesterol(VI). Compounds II and VI are isolated from *Morinda* Genus for the first time.

MH - Anthraquinones/*IP

MH - Drugs, Chinese Herbal/*CH

MH - English Abstract

MH - Sitosterols/*IP

MH - Medline File

AD - Nanjing Municipal Hospital of Traditional Chinese Medicine.

SO - Chung Kuo Chung Yao Tsa Chih 1991 Nov;16(11):675-6, 703

DP - 1991 Nov

TA - Chung Kuo Chung Yao Tsa Chih

PG - 675-6, 703

IP - 11

VI - 16

IS - 1001-5302

UI - 92207346

LA - Chinese

RN - 5779-62-4

RN - 84-54-8

12

AU - Cui C

AU - Yang M

AU - Yao Z

AU - Cao B

AU - Luo Z

AU - Xu Y

AU - Chen Y

TI - [Antidepressant active constituents in the roots of *Morinda officinalis* How] AB - Five compounds having antidepressant activities have been isolated from the roots of *Morinda officinalis*, a Chinese traditional Yang- tonic drug. These compounds were identified as succinic acid (1), nystose (2), 1F-fructofuranosylnystose (3), inulin-type hexasaccharide (4) and heptasaccharide (5) by chemical and spectroscopic methods. All of the compounds are isolated from the species of genus *Morinda* for the first time.

MH - Animal

MH - Antidepressive Agents/CH/*IP

MH - Drugs, Chinese Herbal/*CH

MH - English Abstract

MH - Mice

MH - Molecular Structure

MH - Oligosaccharides/CH/IP
MH - Plant Roots/*CH
MH - Succinates/CH/IP
MH - Medline File
AD - Institute of Pharmacology and Toxicology
AD - Academy of Military Medical Sciences
AD - Beijing.
SO - Chung Kuo Chung Yao Tsa Chih 1995 Jan;20(1):36-9, 62-3
DP - 1995 Jan
TA - Chung Kuo Chung Yao Tsa Chih
PG - 36-9, 62-3
IP - 1
VI - 20
IS - 1001-5302
UI - 95352194
LA - Chinese
RN - 110-15-6
RN - 13133-07-8
RN - 59432-60-9

13

AU - Lin L
AU - Xu HH
AU - Yao YL
AU - Wang SY
AU - Deng PF
AU - Zhen YE
AU - Lu WQ

TI - [Influence of the blight of *Morinda officinalis* How on microscopic structure and constituents of the host] AB - The results showed that microscopic structure in biennial roots, the contents of B and Mn in nutritive organ and beta-sitosterol content in roots, stems of *Morinda officinalis* were affected markedly. The total sugar content in the roots and aerial stems was decreased by 5.42%-15.29%.

MH - Boron/AN
MH - Carbohydrates/AN
MH - English Abstract
MH - Manganese/AN
MH - Medicine, Chinese Traditional
MH - Plant Diseases/*
MH - Plants, Medicinal/*AH/*CH
MH - Sitosterols/AN
MH - Medline File
AD - Guangzhou College of Traditional Chinese Materia Medica.
SO - Chung Kuo Chung Yao Tsa Chih 1993 Jul;18(7):401-3, 446
DP - 1993 Jul
TA - Chung Kuo Chung Yao Tsa Chih

PG - 401-3, 446
IP - 7
VI - 18
IS - 1001-5302
UI - 94092308
LA - Chinese
RN - 5779-62-4
RN - 7439-96-5
RN - 7440-42-8

14

AU - Wei X
AU - Pang F
AU - He M
AU - Hu T

TI - [Experimental studies on growing seedlings of *Morinda officinalis* How] AB - By using the techniques of growing seedlings in bowshaped shed covered with plastic sheeting plus treatment with plant growth regulator, vegetative and generative propagation tests have been made of *Morinda officinalis*. Scientific evidences have thus been provided for growing seedlings of *Morinda officinalis*.

MH - English Abstract
MH - Indoleacetic Acids
MH - Naphthaleneacetic Acids
MH - Plant Growth Regulators
MH - Plants, Medicinal/*GD
MH - Seeds/GD
MH - Medline File
AD - Guangxi Institute of Materia Medica
AD - Nanning.
SO - Chung Kuo Chung Yao Tsa Chih 1992 Oct;17(10):588-91, 638
DP - 1992 Oct
TA - Chung Kuo Chung Yao Tsa Chih
PG - 588-91, 638
IP - 10
VI - 17
IS - 1001-5302
UI - 93191912
LA - Chinese

15

AU - Li S
TI - [Comparison of the chemical constituents between the cortex and the wood center of *Morinda officinalis* How] AB - [No Abstract Available]

MH - Chromatography, Thin Layer
MH - Comparative Study
MH - Drugs, Chinese Herbal/*AN
MH - English Abstract
MH - Spectrophotometry, Ultraviolet
MH - Trace Elements/*AN
MH - Medline File
SO - Chung Yao Tung Pao 1988 Feb;13(2):17-9, 61-2
DP - 1988 Feb
TA - Chung Yao Tung Pao
PG - 17-9, 61-2
IP - 2
VI - 13
IS - 0254-0029
UI - 88327947
LA - Chinese

16
AU - Zhuo FX
TI - [Chemical constituents of *Morinda officinalis*]
AB - [No Abstract Available]
MH - Anthraquinones/*IP
MH - Medicine, Chinese Traditional/*
MH - Medicine, Oriental Traditional/*
MH - Plants, Medicinal/*AN
MH - Medline File
SO - Chung Yao Tung Pao 1986 Sep;11(9):42-3
DP - 1986 Sep
TA - Chung Yao Tung Pao
PG - 42-3
IP - 9
VI - 11
IS - 0254-0029
UI - 87187934
LA - Chinese

17
AU - Asuzu IU
AU - Chineme CN

TI - Effects of *Morinda lucida* leaf extract on *Trypanosoma brucei brucei* infection in mice. AB - The dried leaves of *Morinda lucida* were extracted with 50% methanol and the extract was recovered in a 9.7% w/w yield. Acute toxicity tests were performed in mice and the intraperitoneal LD50 of the extract was 2000 mg/kg. The extract induced purgation in mice from the first hour after oral administration and reached its peak between the third and fourth hour. The purgation was not dose-dependent. *M. lucida*

leaf extract i.p. significantly suppressed the level of parasitemia after *Trypanosoma brucei* infection in mice. Suppression of existing parasitemia appeared dose-dependent with 1000 mg/kg i.p. producing the maximum effect. The best trypanocidal activity was obtained when treatment with *M. lucida* extract commenced simultaneously with trypanosome inoculation.

MH - Animal
MH - Drug Evaluation
MH - Female
MH - Hematocrit
MH - Lethal Dose 50
MH - Male
MH - Mice
MH - Plant Extracts/TO/*TU
MH - Plants, Medicinal
MH - Support, Non-U.S. Gov't
MH - Trypanocidal Agents/TO/TU
MH - *Trypanosoma brucei brucei*/*DE/IP
MH - Trypanosomiasis, African/BL/*DT/PS
MH - Medline File
AD - Department of Veterinary Physiology and Pharmacology
AD - University of Nigeria
AD - Nsukka.
SO - J Ethnopharmacol 1990 Oct;30(3):307-13
DP - 1990 Oct
TA - J Ethnopharmacol
PG - 307-13
IP - 3
VI - 30
IS - 0378-8741
UI - 91080577

18

AU - Chang P
AU - Lee KH
AU - Shingu T
AU - Hirayama T
AU - Hall IH
AU - Huang HC

TI - Antitumor agents 50. 1 Morindaparvin-A, a new antileukemic anthraquinone, and alizarin-1-methyl ether from *Morinda parvifolia*, and the antileukemic activity of the related derivatives.

AB - [No Abstract Available]

MH - Animal
MH - Anthraquinones/*IP/PD
MH - Antineoplastic Agents, Phytogetic/*IP

MH - Leukemia P388/*DT
MH - Leukemia, Experimental/*DT
MH - Mice
MH - Plants, Medicinal/*AN
MH - Support, Non-U.S. Gov't
MH - Support, U.S. Gov't, P.H.S.
MH - Medline File
SO - J Nat Prod 1982 Mar-Apr;45(2):206-10
DP - 1982 Mar-Apr
TA - J Nat Prod
PG - 206-10
IP - 2
VI - 45
IS - 0163-3864
UI - 82241174
RN - 41621-32-3
RN - 6170-06-5

19

AU - Cimanga K
AU - De Bruyne T
AU - Lasure A
AU - Van Poel B
AU - Pieters L
AU - Vanden Berghe D
AU - Vlietinck A
AU - Kambu K
AU - Tona L

TI - In vitro anticomplementary activity of constituents from *Morinda morindoides*. AB - In a screening program for complement classical pathway modulation, an 80% MeOH extract of the leaves of *Morinda morindoides* showed potent dose-dependent anticomplementary activity. Bioassay-guided chromatographic separation of the active constituents led to the isolation of ten flavonoids of which two were aglycones. The compounds were tested in vitro for their putative complement-inhibiting properties on the classical (CP) and the alternative (AP) pathways of the complement system. The results indicated that quercetin [1], quercetin 3-O-rhamnoside (quercitrin) [5], and quercetin 3-O-rutinoside (rutin) [7] showed similar anticomplementary activities (inhibition) on the CP of complement. A mixture of two kaempferol triglycosides isolated and denoted as M(015), also had a good inhibitory effect. The effects of these compounds were dose-dependent for this pathway. On the AP of complement, quercetin [1] and M(015) had, respectively, more pronounced inhibitory and activatory effects than the other tested flavonoids, but their effects were not dose-dependent for this pathway. The other isolated flavonoids showed weak effects or were inactive for both pathways.

MH - Animal
MH - Bioflavonoids/IP/PD
MH - Complement Inactivators/*PD
MH - Complement Pathway, Alternative/DE

MH - Complement Pathway, Classical/DE
MH - Guinea Pigs
MH - Hemolysis/DE
MH - Human
MH - In Vitro
MH - Plant Extracts/PD
MH - Plant Leaves/CH
MH - Plants, Medicinal/*CH
MH - Rabbits
MH - Sheep
MH - Support, Non-U.S. Gov't
MH - Medline File
AD - Department of Pharmaceutical Sciences
AD - University of Antwerp
AD - Belgium.
SO - J Nat Prod 1995 Mar;58(3):372-8
DP - 1995 Mar
TA - J Nat Prod
PG - 372-8
IP - 3
VI - 58
IS - 0163-3864
UI - 95294589

20

AU - Chang P
AU - Lee KH
AU - Shingu T
AU - Hirayama T
AU - Hall IH
AU - Huang HC

TI - ANTITUMOR AGENTS 50. MORINDAPARVIN-A, A NEW ANTILEUKEMIC ANTHRAQUINONE, AND ALIZARIN-1-METHYL ETHER FROM MORINDA PARVIFOLIA, AND THE ANTILEUKEMIC ACTIVITY OF THE RELATED DERIVATIVES AB - The isolation and characterization of morindaparvin-A (1,2-methylenedioxyanthraquinone) and alizarin-1-methyl ether are described; both compounds possess in vivo antileukemic activity against P-388 lymphocytic leukemia in mice. Six other related compounds were prepared but proved to be inactive against P-388 lymphocytic leukemia. (10 Refs)

MH - Animal
MH - Anthraquinones/CS/*TU
MH - Antineoplastic Agents/*TU
MH - Comparative Study
MH - Drug Screening
MH - Leukemia P388/*DT
MH - Mice

MH - Plant Extracts/*TU
MH - Plants, Medicinal
MH - Structure-Activity Relationship
MH - Cancerlit File
AD - Dept. Medicinal Chemistry
AD - Sch. Pharmacy
AD - Univ. North Carolina
AD - Chapel Hill
AD - NC
AD - 27514
SO - J Nat Prod 1982;45(2):206-210
DP - 1982
TA - J Nat Prod
PG - 206-210 1982
IP - 2
VI - 45
UI - 82622199

21

AU - Younos C
AU - Rolland A
AU - Fleurentin J
AU - Lanhers MC
AU - Misslin R
AU - Mortier F

TI - Analgesic and behavioural effects of *Morinda citrifolia*. AB - The traditional therapeutic indications for the use of *Morinda citrifolia* L. (Rubiaceae) have been investigated. The lyophilized aqueous extract of roots of *M. citrifolia* was evaluated for analgesic and behavioural effects in mice. The extract did not exhibit any toxic effects but did show a significant, dose-related, central analgesic activity in the writhing and hotplate tests; this effect was confirmed by the antagonistic action of naloxone. Furthermore, administration of *M. citrifolia* extract at high dosages decreased all behavioural parameters in the two compartment test, the light/dark choice situation test, and the staircase test; together with the induced sleeping time, these results are suggestive of sedative properties.

MH - Analgesics/*AD
MH - Animal
MH - Anti-Anxiety Agents/AD
MH - Behavior, Animal/*DE
MH - Female
MH - Male
MH - Mice
MH - Naloxone/PD
MH - Plant Extracts/AD/AI/*PD/TO
MH - Sedatives, Nonbarbiturate/AD
MH - Medline File
AD - Laboratoire de Pharmacognosie

AD - Universite de Metz
AD - France.
SO - Planta Med 1990 Oct;56(5):430-4
DP - 1990 Oct
TA - Planta Med
PG - 430-4
IP - 5
VI - 56
IS - 0032-0943
UI - 91172909
RN - 465-65-6

22

AU - Levand O
AU - Larson HO
TI - Some chemical constituents of *Morinda citrifolia*.
AB - [No Abstract Available]
MH - Antibiotics/*IP
MH - Fruit/*AN
MH - Glycosides/IP
MH - Plants, Medicinal/*AN
MH - Medline File
SO - Planta Med 1979 Jun;36(2):186-7
DP - 1979 Jun
TA - Planta Med
PG - 186-7
IP - 2
VI - 36
UI - 79224205

23

AU - Zenk MH
AU - el-Shagi H
AU - Schulte U
TI - Anthraquinone production by cell suspension cultures of *Morinda citrifolia*. AB - [No Abstract Available]

MH - Anthraquinones/*ME
MH - Cells, Cultured
MH - Plants, Medicinal/*ME
MH - Suspensions
MH - Medline File
SO - Planta Med 1975;Suppl:79-101
DP - 1975
TA - Planta Med
PG - 79-101

VI - Suppl
IS - 0032-0943
UI - 76053593

24

AU - Leistner E

TI - [Isolation, identification and biosynthesis of anthraquinones in cell suspension cultures of *Morinda citrifolia* (author's transl)] TT - Isolierung, Identifizierung und Biosynthese von Anthrachinonen in Zellsuspensionskulturen von *Morinda citrifolia*

AB - [No Abstract Available]

MH - Anthraquinones/*IP/ME

MH - Chemistry

MH - English Abstract

MH - Plants, Medicinal/*ME

MH - Tissue Culture

MH - Medline File

SO - *Planta Med* 1975;Suppl:214-24

DP - 1975

TA - *Planta Med*

PG - 214-24

VI - Suppl

IS - 0032-0943

UI - 76053587

LA - German

25

AU - Durodola JI

TI - Anti-neoplastic property of a crystalline compound extracted from *Morinda lucida*.

AB - [No Abstract Available]

MH - Animal

MH - Antineoplastic Agents/*IP

MH - Mice

MH - Plants, Medicinal/*AN

MH - Sarcoma, Experimental/DT

MH - Medline File

SO - *Planta Med* 1974 Nov;26(3):208-11

DP - 1974 Nov

TA - *Planta Med*

PG - 208-11

IP - 3

VI - 26

IS - 0032-0943

UI - 75047136

26

AU - Durodola JI

TI - ANTI-NEOPLASTIC PROPERTY OF A CRYSTALLINE COMPOUND EXTRACTED FROM MORINDA LUCIDA AB - A carcinostatic effect against sarcoma 180 in Swiss albino mice was demonstrated for a crystalline material isolated from the stem of *Morinda lucida*, used traditionally for treating malaria. Dosage was 50 mg/kg/d x 7, beginning 1 d after tumor inoc. Tumor inhibition, as estimated by the effect on the wt of the ascites, was 83% by the end of treatment. Preliminary results against L1210 and P388 leukemia systems were negative. (6 refs)

MH - Cancerlit File

AD - Dept. Surg./Oncol.

AD - Univ. Ibadan

AD - Ibadan

AD - Nigeria

SO - *Planta Med* 1974;26(3):208-211

DP - 1974

TA - *Planta Med*

PG - 208-211 1974

IP - 3

VI - 26

IS - 0032-0943

UI - 74805273

27

AU - Koumaglo K

AU - Gbeassor M

AU - Nikabu O

AU - de Souza C

AU - Werner W

TI - Effects of three compounds extracted from *Morinda lucida* on *Plasmodium falciparum*. AB - The effects of three compounds, digitolutein (1), rubiadin 1-methyl ether (2) and damnacanthal (3) extracted from the stem bark and the roots of *Morinda lucida* Benth. on the growth of *Plasmodium falciparum* in vitro were investigated. The number of parasites (schizonts) decreased significantly in a dose-dependent manner, and 100% of inhibition was obtained with 30 to 40 micrograms of each compound tested. The IC50 values were calculated.

MH - Animal

MH - Anthraquinones/CH/IP/*PD

MH - Antimalarials/CH/*PD

MH - Human

MH - Molecular Structure

MH - Plants, Medicinal/*CH

MH - *Plasmodium falciparum*/*DE

MH - Support, Non-U.S. Gov't

MH - Medline File
AD - Departement de Chimie
AD - Universite du Benin
AD - Lome
AD - Togo.
SO - Planta Med 1992 Dec;58(6):533-4
DP - 1992 Dec
TA - Planta Med
PG - 533-4
IP - 6
VI - 58
IS - 0032-0943
UI - 93133958
RN - 477-84-9
RN - 477-86-1
RN - 7460-43-7

28

AU - Hirazumi A
AU - Furusawa E
AU - Chou SC
AU - Hokama Y

TI - Anticancer activity of *Morinda citrifolia* (noni) on intraperitoneally implanted Lewis lung carcinoma and retroviral leukemia in mice (Meeting abstract). AB - The fruit juice of noni has been found to be therapeutically active against ip implanted Lewis lung carcinoma (LLC) in syngeneic C57BL/6 mice. The antitumor principle(s), which was concentrated in the ethanol-precipitable (EtOH-ppt) fraction, increased the survival time of mice by 123% (MST of control = 14.7 days vs MST of treated = 32.7; number of survivors of control = 0/34 mice vs number of survival of treated = 15/34) when administered ip (35 mg/kg) every other day, starting on day 1 or 2. The EtOH-ppt was noncytotoxic in KB cell cultures. Concomitant treatment with 2-chloroadenosine or cyclosporine resulted in the abrogation of the antitumor activity of the EtOH-ppt, suggesting the antitumor activity acts via activation of host-immune system. Chemoimmunotherapy of vincristine, 5- fluorouracil, cisplatin, or Adriamycin combined with the EtOH-ppt demonstrated beneficial additive or synergistic effects. Preliminary data show production of interleukin-1, but not interleukin-2, from cell culture supernatant of human peripheral mononuclear cells. Antiviral studies using Rauscher murine retrovirus, a convenient model for HIV studies, show inhibition of leukemic splenomegaly in BALB/c mice inoculated with the virus.

MH - Animal
MH - Antineoplastic Agents/TU
MH - Cyclosporine/TU
MH - Fruit/*
MH - Interleukin-1/ME
MH - Interleukin-2/ME
MH - Leukemia/IM/TH
MH - Mice

MH - Mice, Inbred C57BL
MH - Plants, Medicinal/*
MH - Retroviridae Infections/IM/TH
MH - Tumor Virus Infections/IM/TH
MH - 2-Chloroadenosine/TU
MH - Aidsline File
MH - Cancerlit File
PT - Abstract
AD - Dept. of Pharmacology
AD - Univ. of Hawaii
AD - Honolulu
AD - HI 96822
SO - Proc Annu Meet Am Assoc Cancer Res 1994;35:A2854
DP - 1994
TA - Proc Annu Meet Am Assoc Cancer Res
PG - A2854 1994
VI - 35
IS - 0197-016X
UI - 95604539
RN - 146-77-0
RN - 59865-13-3

29

AU - Umezawa K
AU - Hiramatsu T
AU - Imoto M
AU - Koyano T

TI - Isolation of a ras-function inhibitor from an extract of the tropical plant *Morinda citrifolia* (Meeting abstract). AB - We have screened ras-function inhibitors from several hundred plant extracts by a morphological assay. The chloroform extract of the tropical plant *Morinda citrifolia* induced normal flat morphology in K- ras(ts)-NRK cells at the permissive temperature. The active principle was purified through successive silica gel column chromatography and crystallized from a dichloromethane-hexane solution. The structure was elucidated by mass and nmr spectra and x-ray crystallographic analysis to be an anthraquinone compound (III-117 C). III-117 C induced normal morphology and actin fiber organization at 5-10 ug/ml in 2 days, but did not influence the morphology of NRK and RSVts-NRK cells. It inhibited the growth of normal and ras-transformed cells with IC50s of 2-8 ug/ml. The effects of III-117 C on cell morphology and growth were reversible. III-117 C did not influence the content of Ras in K-ras(ts)-NRK cells, and its cellular effect was not reversed by mevalonate. The mechanism of inhibition is now under study.

MH - Animal
MH - Anthraquinones/IP/*PD
MH - Antineoplastic Agents, Phytogenic/IP/*PD
MH - Cell Division/*DE
MH - Cell Line, Transformed
MH - Dose-Response Relationship, Drug

MH - Plant Extracts/*PD
MH - Proto-Oncogene Protein p21(ras)/*AI
MH - Rats
MH - Tumor Cells, Cultured/*DE
MH - Cancerlit File
PT - Meeting Abstract
AD - Dept. of Applied Chemistry
AD - Keio Univ.
AD - Yokohama 223
AD - Japan
SO - Proc Annu Meet Am Assoc Cancer Res 1993;34:A2301
DP - 1993
TA - Proc Annu Meet Am Assoc Cancer Res
PG - A2301 1993
VI - 34
IS - 0197-016X
UI - 93693253

30

AU - Hirazumi A
AU - Furusawa E
AU - Chou SC
AU - Okano C
AU - Ching C

TI - ANTITUMOR ACTIVITY OF MORINDA CITRIFOLIA ON IP IMPLANTED LEWIS LUNG CARCINOMA IN MICE (MEETING ABSTRACT) AB - The fruit of *Morinda citrifolia*, a tree widely distributed in the warm regions of the Pacific, called Noni in Hawaii, was used as a traditional remedy for malignancies by Polynesians. We have found that the fresh juice of the ripened fruit showed significant prolongation effect on the life span of syngeneic C57BL/6 mice implanted ip with Lewis lung carcinoma, when the juice was administered ip at the nontoxic dose of 750 mg/kg solid, every other day, starting on day 1 or 2. MST: control, 14.8 days vs treated, 33.5 days. Survivors: 0/23 control mice vs 9/22 treated mice. The juice was not cytotoxic on human KB cells, murine BALB/3T3, NIH/3T3 and XC cells in tube at the high concentration of 4 mg/ml. It seems to suppress the tumor growth indirectly via activation of host immune systems.

MH - Animal
MH - Antineoplastic Agents/PD/*TU
MH - Cell Line
MH - Cell Survival/DE
MH - Fruit/*
MH - Human
MH - KB Cells
MH - Lung Neoplasms/*DT
MH - Mice
MH - Mice, Inbred C57BL
MH - Plant Extracts/PD/*TU

MH - 3T3 Cells
MH - Cancerlit File
PT - Meeting Abstract
AD - Dept. of Pharmacology
AD - Univ. of Hawaii
AD - Honolulu
AD - Hawaii 96816
SO - Proc Annu Meet Am Assoc Cancer Res 1992;33:A3078
DP - 1992
TA - Proc Annu Meet Am Assoc Cancer Res
PG - A3078 1992
VI - 33
IS - 0197-016X
UI - 92685612

31

AU - Hirazumi A
AU - Furusawa E
AU - Chou SC
AU - Hokama Y

TI - Anticancer activity of *Morinda citrifolia* (noni) on intraperitoneally implanted Lewis lung carcinoma in syngeneic mice. AB - [No Abstract Available]

MH - Animal
MH - Antineoplastic Agents, Combined/TU
MH - Antineoplastic Agents, Phytogetic/*TU
MH - Carcinoma, Lewis Lung/*DT/PA
MH - Cyclosporine/TU
MH - Hawaii
MH - Mice
MH - Mice, Inbred C57BL
MH - Neoplasm Transplantation
MH - Peritoneal Cavity
MH - Plant Extracts/TU
MH - Plants, Medicinal/*CH
MH - 2-Chloroadenosine/TU
MH - Medline File
MH - Cancerlit File
AD - Department of Pharmacology
AD - John A. Burns School of Medicine
AD - University of Hawaii
AD - Honolulu.
SO - Proc West Pharmacol Soc 1994;37:145-6
DP - 1994
TA - Proc West Pharmacol Soc
PG - 145-6

VI - 37
IS - 0083-8969
UI - 95075896
RN - 146-77-0
RN - 59865-13-3

32
AU - Yang YJ
AU - Shu HY
AU - Min ZD

TI - [Anthraquinones isolated from *Morinda officinalis* and *Damnacanthus indicus*] AB - From chloroform extract of the root of *Morinda officinalis*, eight anthraquinones were isolated whose structures were deduced to be rubiadin (I), rubiadin-1-methyl ether (II), 1-hydroxyanthraquinone (III), 1-hydroxy-2-methylanthraquinone (IV), 1,6-dihydroxy-2,4-dimethoxyanthraquinone (V), 1,6-dihydroxy-2-methoxyanthraquinone (VI), 1-hydroxy-2-methoxyanthraquinone (VII) and physcion (VIII). Except for compound I and compound II, the other compounds, 1-hydroxy-2-hydroxymethylanthraquinone (IX), 1,3-dihydroxy-2-methoxyanthraquinone (X), 1,4-dihydroxy-2-methylanthraquinone (XI), 1-methoxy-2-hydroxyanthraquinone (XII) and 1,4-dimethoxy-2-hydroxyanthraquinone (XIII), were isolated from chloroform extract of root of *Damnacanthus indicus*. Compound V, VI and XIII are new compounds.

MH - Anthraquinones/CH/*IP
MH - Drugs, Chinese Herbal/*CH
MH - English Abstract
MH - Molecular Structure
MH - Support, Non-U.S. Gov't
MH - Medline File
AD - Department of Phytochemistry
AD - China Pharmaceutical University
AD - Nanjing.
SO - Yao Hsueh Hsueh Pao 1992;27(5):358-64
DP - 1992
TA - Yao Hsueh Hsueh Pao
PG - 358-64
IP - 5
VI - 27
IS - 0513-4870
UI - 93071074
LA - Chinese
RN - 107953-78-6
RN - 142878-32-8
RN - 142878-33-9