

Graviola - *Annona muricata*. Novas acetogeninas citotóxicas das folhas ou sementes ou raiz no câncer: 14 trabalhos

O primeiro trabalho listado : efeito no hepatoma humano

O 12º trabalho listado: efeito no câncer de pulmão e mama

## **Novel cytotoxic annonaceous acetogenins from *Annona muricata*.**

[Chang FR](#), [Wu YC](#).  
[J Nat Prod](#). 2001 Jul;64(7):925-31.

### **Source**

Graduate Institute of Natural Products, Kaohsiung Medical University, Kaohsiung 807, Taiwan, Republic of China.

### **Abstract**

Seven new annonaceous acetogenins, muricins A-G (1-7), as well as five known compounds, a mixture of muricatetrocin A (8) and muricatetrocin B (9), longifolicin (10), corossolin (11), and corossolone (12), were isolated from the seeds of *Annona muricata*. The structures of all isolates were elucidated and characterized by spectral and chemical methods. These acetogenins showed significantly selective in vitro cytotoxicities toward the human hepatoma cell lines Hep G(2) and 2,2,15.

PMID:11473425

## **Five new monotetrahydrofuran ring acetogenins from the leaves of *Annona muricata*.**

[Zeng L](#), [Wu FE](#), [Oberlies NH](#), [McLaughlin JL](#), [Sastrodihadjo S](#).

[J Nat Prod](#). 1996 Nov;59(11):1035-42**Source**

Purdue University, School of Pharmacy and Pharmacal Sciences, Department of Medicinal Chemistry and Molecular Pharmacology, West Lafayette, Indiana 47907, USA.

## Abstract

Bioactivity-directed fractionation of the leaves of *Annona muricata* resulted in the isolation of annopentocins A (1), B (2), and C(3), and cis- and trans-annomuricin-D-ones (4, 5). Compounds 1-3 are the first acetogenins reported bearing a mono-tetrahydrofuran (THF) ring with one flanking hydroxyl, on the hydrocarbon side, and another hydroxyl, on the lactone side, that is one carbon away from the THF ring. Compounds 4 and 5 were obtained in a mixture and are new mono-THF ring acetogenins bearing two flanking hydroxyls and an erythro-diol located between the THF and the ketolactone rings. Compound 1 was selectively cytotoxic to pancreatic carcinoma cells (PACA-2), and 2 and 3 were selectively cytotoxic to lung carcinoma cells (A-549); the mixture of 4 and 5 was selectively cytotoxic for the lung (A-549), colon (HT-29), and pancreatic (PACA-2) cell lines with potencies equal to or exceeding those of Adriamycin.

PMID:8946744

# Five novel mono-tetrahydrofuran ring acetogenins from the seeds of *Annona muricata*.

[Rieser MJ](#), [Gu ZM](#), [Fang XP](#), [Zeng L](#), [Wood KV](#), [McLaughlin JL](#). [J Nat Prod](#). 1996 Feb;59(2):100-8.

## Source

AgrEvo Research Center, Pikeville, North Carolina 27863, USA.

## Abstract

Bioactivity-directed fractionation of the seeds of *Annona muricata* L. (Annonaceae) resulted in the isolation of five new compounds: cis-annonacin (1), cis-annonacin-10-one (2), cis-goniothalamycin (3), arianacin (4), and javoricin (5). Three of these (1-3) are among the first cis mono-tetrahydrofuran ring acetogenins to be reported. NMR analyses of published model synthetic compounds, prepared cyclized formal acetals, and prepared Mosher ester derivatives permitted the determinations of absolute stereochemistries. Bioassays of the pure compounds, in the brine shrimp test, for the inhibition of crown gall tumors, and in a panel of human solid tumor cell lines for cytotoxicity, evaluated relative potencies. Compound 1 was selectively cytotoxic to colon adenocarcinoma cells (HT-29) in which it was 10,000 times the potency of adriamycin.

PMID:8991944

# Muricoreacin and murihexocin C, mono-tetrahydrofuran acetogenins, from the leaves of *Annona muricata*.

[Kim GS](#), [Zeng L](#), [Alali F](#), [Rogers LL](#), [Wu FE](#), [Sastrodihardjo S](#), [McLaughlin JL](#). [Phytochemistry](#). 1998 Sep;49(2):565-71.

## Source

Department of Medicinal Chemistry and Molecular Pharmacology, School of Pharmacy and Pharmacal Sciences, Purdue University, West Lafayette, IN 47906, USA.

## Abstract

Bioactivity-directed fractionation of the leaves of *Annona muricata* L. (Annonaceae) resulted in the isolation of two new Annonaceous acetogenins, muricoreacin (1) and murihexocin C (2). Compounds 1 and 2 showed significant cytotoxicities among six human tumor cell lines with selectivities to the prostate adenocarcinoma (PC-3) and pancreatic carcinoma (PACA-2) cell lines.

PMID:9747542

# Apolar Annonaceous acetogenins from the fruit pulp of *Annona muricata*.

[Melot A](#), [Fall D](#), [Gleye C](#), [Champy P](#). [Molecules](#). 2009 Nov 2;14(11):4387-95.

## Source

CNRS UMR 8076 BioCIS, Faculté de Pharmacie Paris-Sud 11, Châtenay-Malabry, France.

## Abstract

A methylene chloride extract of the pulp of *Annona muricata* L. was fractionated in search for scarcely functionalized Annonaceous acetogenins (type E). Previously known C-35 and C-37 mono-epoxy unsaturated compounds, epomuricenins-A and -B (1+2) and epomusenins-A and -B (3+4), were obtained. Two new mono-epoxy saturated C-35 representatives, epomurinins-A and -B (5+6) were also isolated.

PMID:19924072

## **Annonaceous acetogenins of the seeds from *Annona muricata*.**

[Li DY](#), [Yu JG](#), [Zhu JX](#), [Yu DL](#), [Luo XZ](#), [Sun L](#), [Yang SL](#).  
[J Asian Nat Prod Res.](#) 2001;3(4):267-76.

### **Source**

Institute of Medicinal Plant Development, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing. lideyu8@hotmail.com

### **Abstract**

Muricatenol (1) is a new C37 non-THF ring acetogenin with four hydroxyls and one isolated double bond in the long aliphatic chain. 2,4-cis-Gigantetrocinone (2) and 2,4-trans-gigantetrocinone (3) have been isolated as their acetates by preparative TLC. 2,4-trans-Isoannonacin-10-one (4) and 2,4-trans-isoannonacin (5) have been isolated as only 2,4-trans-form for the first time (no cis-form). Also four known acetogenins, gigantetrocin-A (6), gigantetrocin-B (7), anomontacin (8), gigantetronenin (9) and a mixture of N-fatty acyl tryptamines have been isolated (10). Their structures have been established on the basis of spectral analyses. The CHCl<sub>3</sub> fraction of the seeds showed strong antitumor activities.

PMID:11783580

## **cis-monotetrahydrofuran acetogenins from the roots of *annona muricata*1**

[Gleye C](#), [Duret P](#), [Laurens A](#), [Hocquemiller R](#), [Cave A](#).  
[J Nat Prod.](#) 1998 May;61(5):576-9.

### **Source**

Laboratoire de Pharmacognosie, URA 1843 CNRS (BIOCIS), Faculte de Pharmacie, Universite Paris XI, 92296 Chatenay-Malabry Cedex, France.

### **Abstract**

Phytochemical investigation of roots of *Annona muricata* led to the identification of seven mono-tetrahydrofuran (mono-THF) acetogenins. Six new acetogenins having the unusual cis-configuration of the THF ring, cis-solamin (1), cis-panatellin (2), cis-uvariamicin IV (3), cis-uvariamicin I (4), cis-reticulatacin (5), and cis-reticulatacin-10-one (6) were identified, in addition to a known compound, solamin.

PMID:9599252

## Two new mono-tetrahydrofuran ring acetogenins, annomuricin E and muricapentocin, from the leaves of *Annona muricata*.

[Kim GS](#), [Zeng L](#), [Alali F](#), [Rogers LL](#), [Wu FE](#), [McLaughlin JL](#), [Sastrodihardjo S](#). [J Nat Prod](#). 1998 Apr;61(4):432-6.

### Source

Department of Medicinal Chemistry and Molecular Pharmacology, School of Pharmacy and Pharmacal Sciences, Purdue University, West Lafayette, Indiana 47907, USA.

### Abstract

Bioactivity-directed fractionation of the leaf extract of *Annona muricata* L. (Annonaceae) has resulted in the isolation of two new Annonaceous acetogenins, annomuricine (1) and muricapentocin (2). Compounds 1 and 2 are monotetrahydrofuran ring acetogenins bearing two flanking hydroxyl groups; however, each has three additional hydroxyl groups. Compound 1 has an erythro 1,2-diol, and 2 has a 1,5,9-triol moiety. Both 1 and 2 showed significant cytotoxicities against six types of human tumors, with selectivities to the pancreatic carcinoma (PACA-2) and colon adenocarcinoma (HT-29) cell lines.

PMID:9584396

# [Studies on the chemical constituents of *Annona muricata*].

[Article in Chinese]

[Yu JG](#), [Gui HQ](#), [Luo XZ](#), [Sun L](#), [Zhu P](#), [Yu ZL](#).  
[Yao Xue Xue Bao](#). 1997 Jun;32(6):431-7.

## Source

Institute of Medicinal Plant Development, Chinese Academy of Medical Sciences and Peking Union Medical College, Beijing 100094.

## Abstract

Annonaceous acetogenin (or polyketide) is a kind of potential antineoplastic agents from Annonaceae plants. Two new acetogenins, Muricatalicin (I) and muricatalin (VI), a mesitoate of a new acetogenin, annonacin-B mesitoate (Vb), and three known acetogenins, annonacin (II), annonacin-A (III) and annonacin-10-one (IV) have been isolated from *Annona muricata* L. The structures and relative stereochemistry of I, VI and Vb were elucidated on the basis of spectral analysis and examination of their acetates and/or mesitoate.

PMID:11596323

# Isolation of Montecristin, a Key Metabolite in Biogenesis of Acetogenins from *Annona muricata* and Its Structure Elucidation by Using Tandem Mass Spectrometry.

[Gleye C](#), [Laurens A](#), [Hocquemiller R](#), [Cavé A](#), [Laprévote O](#), [Serani L](#).  
[J Org Chem](#). 1997 Feb 7;62(3):510-513.

## Source

Laboratoire de Spectrométrie de Masse, Institut de Chimie des Substances Naturelles, CNRS, 91198 Gif-sur-Yvette.

## Abstract

During the course of our continuing search for acetogenins from Annonaceae, a new metabolite, montecristin, possibly involved in the biogenesis of acetogenins, was isolated from the roots of *Annona muricata*. Its structure was elucidated on the basis of UV, IR, (1)H and (13)C NMR, and mass spectrometry. The identification of the main structural features of montecristin (1) was obtained from the NMR spectra whereas their locations on the alkyl chain were evidenced by using mass spectrometry. The attribution of each carbon and location of substituents on the alkyl chain of this fatty acid gamma-lactone was evidenced by using tandem mass spectrometry (MS/MS) and high-energy collisional activation of [M + Li](+) lithium complexes. Finally, the structure determination of montecristin was strengthened by epoxidation and transformation leading to a known adjacent bis-tetrahydrofuran acetogenin.

PMID:11671442

## **Additional bioactive acetogenins, anomutacin and (2,4-trans and cis)-10R-annonacin-A-ones, from the leaves of *Annona muricata*.**

[Wu FE](#), [Zhao GX](#), [Zeng L](#), [Zhang Y](#), [Schwedler JT](#), [McLaughlin JL](#), [Sastrodihardjo S](#). *J Nat Prod.* 1995 Sep;58(9):1430-7.

### **Source**

Department of Medicinal Chemistry and Pharmacognosy, School of Pharmacy and Pharmacal Sciences, Purdue University, West Lafayette, Indiana 47907, USA.

### **Abstract**

In a continuation of our research on bioactive components from the leaves of *Annona muricata*, three novel monotetrahydrofuran Annonaceous acetogenins, namely, anomutacin [1], (2,4-trans)-10R-annonacin-A-one [2], and (2,4-cis)-10R-annonacin-A-one [3], have been identified. Their structures were deduced by ms, nmr, ir, and uv spectral and chemical methods, and the absolute configurations were determined by Mosher ester methodology. A known bioactive amide, N-p-coumaroyl tyramine, was also found. Compound 1 and the mixture of compounds 2 and 3 showed selective cytotoxicities against the human A-549 lung tumor cell line.

PMID:7494150

# New bioactive monotetrahydrofuran Annonaceous acetogenins, anomuricin C and muricatocin C, from the leaves of *Annona muricata*.

[Wu FE](#), [Zeng L](#), [Gu ZM](#), [Zhao GX](#), [Zhang Y](#), [Schwedler JT](#), [McLaughlin JL](#), [Sastrodihardjo S](#).  
[J Nat Prod](#). 1995 Jun;58(6):909-15.

## Source

Department of Medicinal Chemistry and Pharmacognosy, School of Pharmacy and Pharmacal Sciences, Purdue University, West Lafayette, Indiana 47907, USA.

## Abstract

The leaves of *Annona muricata* have yielded two additional monotetrahydrofuran Annonaceous acetogenins, anomuricin C [1] and muricatocin C [2]. Compounds 1 and 2 each possess five hydroxyl groups; two hydroxyl groups are at the C-10/C-11 and C-10/C-12 positions in 1 and 2, respectively. The absolute configurations of 1 and 2, except for positions C-10 and C-11 or C-12, were determined by Mosher ester methodology. The C-10/C-11 and C-10/C-12 acetonides (1c, 2c) suggested relative stereochemistry and significantly enhanced the cytotoxicities against the **A-549 human lung and the MCF-7 human breast solid tumor cell lines**. One known monotetrahydrofuran acetogenin, gigantetronenin, not described previously from this plant, was also found.

PMID:7673936

# Muricatocins A and B, two new bioactive monotetrahydrofuran Annonaceous acetogenins from the leaves of *Annona muricata*.

[Wu FE](#), [Zeng L](#), [Gu ZM](#), [Zhao GX](#), [Zhang Y](#), [Schwedler JT](#), [McLaughlin JL](#), [Sastrodihardjo S](#).  
[J Nat Prod](#). 1995 Jun;58(6):902-8.

## Source

Department of Medicinal Chemistry and Pharmacognosy, School of Pharmacy and Pharmacal Sciences, Purdue University, West Lafayette, Indiana 47907, USA.

## Abstract

The leaves of *Annona muricata* have yielded the novel monotetrahydrofuran Annonaceous acetogenins, muricatocins A [1] and B [2]. Each compound possesses five hydroxyl groups, with two hydroxyl groups at the C-10 and C-12 positions. The absolute configurations of 1 and 2 (except for positions C-10 and C-12) were determined by Mosher ester methodology. The C-10, C-12 acetonides (1c, 2c) suggested relative stereochemistry and significantly enhanced cytotoxicity against the A-549 human lung tumor cell line. Three known monotetrahydrofuran acetogenins, annonacin A, (2,4-trans)-isoannonacin, and (2,4-cis)-isoannonacin, were also found.

PMID:7673935

# Two new cytotoxic monotetrahydrofuran Annonaceous acetogenins, anomuricins A and B, from the leaves of *Annona muricata*.

[Wu FE](#), [Gu ZM](#), [Zeng L](#), [Zhao GX](#), [Zhang Y](#), [McLaughlin JL](#), [Sastrodihardjo S](#). [J Nat Prod](#). 1995 Jun;58(6):830-6.

## Source

Department of Medicinal Chemistry and Pharmacognosy, School of Pharmacy and Pharmacal Sciences, Purdue University, West Lafayette, Indiana 47907, USA.

## Abstract

The leaves of *Annona muricata* have yielded eight monotetrahydrofuran Annonaceous acetogenins. Two of them, anomuricins A [1] and B [2], whose chemical structures were deduced by ms, nmr, ir, and uv spectral and chemical methods, are novel and unusual. Compounds 1 and 2 each possess five hydroxyl groups; two hydroxyl groups are vicinal, with the vicinal group of 1 threo and that of 2 erythro. The absolute configurations of 1 and 2 were determined by Mosher ester methodology. Six monotetrahydrofuran acetogenins, previously described in the seeds, were found in the leaves; these are gigantetrocin A, annonacin-10-one, muricatetrocins A and B, annonacin, and goniiothalamycin.

PMID:7673926

