This message contains search results from the National Center for Biotechnology Information (NCBI) at the U.S. National Library of Medicine (NLM).

Sent on: Wed Dec 15 13:28:02 2010

APOPTOTIC EFFECTS OF ß-MANGOSTIN FROM THE FRUIT HULL OF GARCINIA MANGOSTANA ON HUMAN MALIGNANT GLIOMA CELLS.
Chang HF, Huang WT, Chen HJ, Yang LL.

Department of Pharmacognosy, School of Pharmacy, College of Pharmacy, and Center of e-CAM, Taipei Medical University, 250 Wusing St., Taipei 110, Taiwan. llyang@tmu.edu.tw.

ABSTRACT
Gliomas are a common type of primary brain tumor with glioblastoma multiforme accounting for the majority of human brain tumors. In this paper, high grade human malignant glioblastomas (MGs) including U87 MG and GBM 8401 were used to evaluate the antitumor effects of ß-mangostin, a xanthone derivative isolated and purified from the hull of the tropical fruit Garcinia mangostana. The ß-mangostin showed potent antiproliferative activity toward MGs in dose- and time-dependent manners. In addition, flow cytometric analysis of cell morphology in the apoptotic cells revealed an increase in hypodiploid cells in ß-mangostin treated U87 MG and GBM 8401 cells, while significant enhancement of intracellular peroxide production was detected in the same ß-mangostin treated cells by DCHDA assay and DiOC(6)(3) stain. ß-Mangostin induced apoptosis, which in turn mediates cytotoxicity in human MG cells was prevented by the addition of catalase. Naturally derived medicines and herbal therapies are drawing increasing attention in regard to the treatment of many health issues, and this includes the testing of new phytochemicals or nutrients for brain tumor patients. This has led to ß-mangostin being identified as a potential leading compound for the development of an anti-brain tumor agent.

PMID: 21139533 [PubMed - in process]

DOXORUBICIN-INDUCED CENTRAL NERVOUS SYSTEM TOXICITY AND PROTECTION BY XANTHONE DERIVATIVE OF GARCINIA MANGOSTANA.
Tangpong J, Miriyala S, Noel T, Sinthupibulyakit C, Jungsuwadee P, St Clair DK.

School of Allied Health Sciences and Public Health, Walailak University, Thailand.

ABSTRACT
Doxorubicin (Dox) is a potent, broad-spectrum chemotherapeutic drug used around the world. Despite its effectiveness, it has a wide range of toxic side effects, many of which most likely result from its inherent pro-oxidant activity. It has been reported that Dox has toxic effects on normal tissues, including brain tissue. The present study tested the protective effect of a xanthone derivative of Garcinia Mangostana against Dox-induced neuronal toxicity. Xanthone can prevent Dox from causing mononuclear cells to increase the level of tumor necrosis factor-alpha (TNFá). We show that xanthone given to mice before Dox administration suppresses protein carbonyl, nitrotyrosine and 4-hydroxy-2'-nonenal (4HNE)-adducted proteins in brain tissue. The levels of the pro-apoptotic proteins p53 and Bax and the anti-apoptotic protein Bcl-xL were significantly increased in Dox-treated mice compared with the control group. Consistent with the increase of
apoptotic markers, the levels of caspase-3 activity and TUNEL-positive cells were also increased in Dox-treated mice. Pretreatment with xanthone suppressed Dox-induced increases in all indicators of injury tested. Together, the results suggest that xanthone prevents Dox-induced central nervous system toxicity, at least in part, by suppression of Dox-mediated increases in circulating TNFα. Thus, xanthone is a good candidate for prevention of systemic effects resulting from reactive oxygen generating anticancer therapeutics.

Copyright © 2010. Published by Elsevier Ltd.

PMID: 21074598 [PubMed - as supplied by publisher]


A NEW ANTIOXIDANT XANTHONE FROM THE PERICARP OF GARCINIA MANGOSTANA LINN.
Zhao Y, Liu JP, Lu D, Li PY, Zhang LX.
College of Chinese Medicinal Materials, Jilin Agricultural University, ChangChun 130118, China.

ABSTRACT

The air-dried fruit hulls of Garcinia mangostana Linn. were extracted with 85% ethanol. Furthermore, a new xanthone, 1,3,6-trihydroxy-2,5-bis(3-methylbut-2-enyl)-6',6'-dimethyl-4',5'-dihydropyrano[2',3':7,8]xanthone, along with five known xanthones related to their antioxidant activity was purified by silica gel column chromatography and then identified using spectroscopic methods (1D and 2D NMR, MS). The antioxidant activities were evaluated using 1,1-diphenyl-2-picrylhydrazyl (DPPH) radical-scavenging capability. An activity-guided isolation and purification process were used to identify the components, showing the strong DPPH radical-scavenging activity of G. mangostana.

PMID: 20954095 [PubMed - in process]


POTENTIAL OF XANTHONES FROM TROPICAL FRUIT MANGOSTEEN AS ANTI-CANCER AGENTS: CASPASE-DEPENDENT APOPTOSIS INDUCTION IN VITRO AND IN MICE.
Department of Biochemistry, Faculty of Medicine, Srinakharinwirot University, Bangkok, Thailand. ramidawa@yahoo.com

ABSTRACT

The pericarp of mangosteen (Garcinia mangostana L.) is rich in various xanthones that are known to possess unique biological activities. In this work, we characterized the anti-proliferative and cytotoxic activities of mangosteen xanthones both in vitro and in mice. In vitro analysis with a human colorectal adenocarcinoma cell line, COLO 205, showed that mangosteen xanthones not only inhibit the proliferation of target cells but also induce their death by apoptosis that involves the activation of the caspase cascade. In vivo analysis using a mouse subcutaneous tumor model with COLO 205 cells showed that, at relatively low doses, the growth of tumors was repressed upon intratumoral administration of mangosteen xanthones. When a higher dose of mangosteen xanthones was administered, the size of tumors was reduced gradually, and, in some mice, the disappearance of tumors was seen. Histopathological analysis and biochemical analysis of tumors that received mangosteen xanthones indicate the induction of apoptosis in tumors, which resulted in the repression of their growth and the reduction of their sizes. These results demonstrate the potential of
mangosteen xanthones to serve as anti-cancer agents for the chemotherapy of cancer.

PMID: 20101528 [PubMed - indexed for MEDLINE]


THERAPEUTIC ACTIVITY OF TWO XANTHONES IN A XENOGRAFT MURINE MODEL OF HUMAN CHRONIC LYMPHOCYTIC LEUKEMIA.


ABSTRACT:

BACKGROUND: We previously reported that allanxanthone C and macluraxanthone, two xanthones purified from Guttiferae trees, display in vitro antiproliferative and proapoptotic activities in leukemic cells from chronic lymphocytic leukemia (CLL) and leukemia B cell lines.

RESULTS: Here, we investigated the in vivo therapeutic effects of the two xanthones in a xenograft murine model of human CLL, developed by engrafting CD5-transfected chronic leukemia B cells into SCID mice. Treatment of the animals with five daily injections of either allanxanthone C or macluraxanthone resulted in a significant prolongation of their survival as compared to control animals injected with the solvent alone (p = 0.0006 and p = 0.0141, respectively). The same treatment of mice which were not xenografted induced no mortality.

CONCLUSION: These data show for the first time the in vivo antileukemic activities of two plant-derived xanthones, and confirm their potential interest for CLL therapy.

Free Article

PMID: 21138552 [PubMed - as supplied by publisher]