

Mangosteen and Pain & Inflammation

1 out of 6 Americans suffering from pain

Chronic daily headaches 4 to 5 percent of the population

Migraines 28 to 30 million people suffer (70% are women)

Arthritis 41 million Americans Suffer *

Fibromyalgia affects 3-6 million (80% are women) *

\$8 Billion+ spent on over-the-counter pain relievers

\$30 Billion + prescription pain relievers

***American College of Rheumatology (ACR)**



TIME Feb 23rd, 2004

“Suddenly, inflammation has become one of the hottest areas of medical research. Hardly a week goes by without the publication of yet another study uncovering a new way that chronic inflammation does harm to the body. It destabilizes cholesterol deposits in the coronary arteries, leading to heart attacks and potentially even strokes. It chews up nerve cells in the brains of Alzheimer’s victims. It may even foster the proliferation of abnormal cells and facilitate their transformation into cancer. *In other words, chronic inflammation may be the engine that drives many of the most feared illnesses of middle and old age.*”

Independent Research From Across the World Regarding Mangosteen’s impact on Inflammation.

**Synthesis and anti-inflammatory
effects of xanthone derivatives.**

**J Pharm Pharmacol. 1996 May;48(5):532-8. Lin
CN, Chung MI, Liou SJ, Lee TH, Wang JP. School of Pharmacy,
Kaohsiung Medical College, Taiwan, R.O.C.**

The researchers studied 18 xanthone derived compounds and found that some of these compounds possessed **strong anti-inflammatory properties.**

Inhibition of cyclooxygenase and prostaglandin E2 synthesis by gamma-mangostin, a xanthone derivative in mangosteen, in C6 rat glioma cells.

Biochem Pharmacol. **2002** Jan 1;63(1):73-9. Nakatani K, Nakahata N, Arakawa T, Yasuda H, Ohizumi Y. Department of Pharmaceutical Molecular Biology, Graduate School of Pharmaceutical Sciences, Tohoku University, Aoba, Aramaki, Aoba-ku, 980-8578, Sendai, Japan.

The fruit hull of mangosteen fruit, *Garcinia mangostana* L., has been used for many years as a medicine for treatment of skin infection, wounds, and diarrhea in Southeast Asia. In the present study, the investigators studied the effect of gamma-mangostin, a xanthone contained in the mangosteen fruit, and showed it had a **potent inhibitory activity of prostaglandin E2 (PGE2) release.**

Gamma-Mangostin inhibits inhibitor-kappaB kinase activity and decreases lipopolysaccharide-induced cyclooxygenase-2 gene expression in C6 rat glioma cells.

Nakatani K, Yamakuni T, Kondo N, Arakawa T, Oosawa K, Shimura S, Inoue H, Ohizumi Y.

Mol Pharmacol. **2004** Sep;66(3):667-74.

We investigated the effect of gamma-mangostin purified from the fruit hull of the medicinal plant *Garcinia mangostana* on spontaneous prostaglandin E(2) (PGE(2)) release and inducible cyclooxygenase-2 (COX-2) gene expression in C6 rat glioma cells. An 18-h treatment with gamma-mangostin potently inhibited spontaneous PGE(2) release in a concentration-dependent manner with the IC(50) value of approximately 2 microM, without affecting the cell viability even at 30 microM. By immunoblotting and reverse-transcription polymerase chain reaction, we showed that gamma-mangostin concentration-dependently inhibited lipopolysaccharide (LPS)-induced expression of COX-2 protein and its mRNA, but not those of constitutive COX-1 cyclooxygenase. These results suggest that gamma-mangostin directly inhibits IKK activity and **thereby prevents COX-2 gene transcription**, an NF-kappaB target gene, probably to decrease the inflammatory agent-stimulated PGE(2) production in vivo, and **is a new useful lead compound for anti-inflammatory drug development.**
