

Turmeric Extract Research



turmeric extract



Turmeric Extract: its medicinal properties are attributed partly to its anti-oxidant and anti-inflammatory characteristics.

Turmeric extract is a concentrated form of the natural spice which is simply a powdered form of the dried root. Turmeric Extract contains three molecular forms: the methoxy form, the demethoxy form and the bisdemethoxy form. The forms tested in the research articles mentioned below are usually a natural mixture of all three unless otherwise stated.

Turmeric Extract is not toxic even at high doses, in laboratory animals, and has been in customary use by the people of India for centuries. As a food coloring ("Food Color E100") turmeric extract is generally recognised as safe (US FDA). Customary dosages for Turmeric Extract are in the range of 1-2.5 gms per day. Turmeric Extract can be obtained in the market place at purities above 95% which is now the standard.

Turmeric extract has attracted the attention of researchers in the fields of Alzheimer's Disease, Arthritis, Cancer and some other areas. Selections from recent research articles on the effects of turmeric extract are included below. [Return to Turmeric Extract](#)

Alzheimer's Disease and Turmeric Extract

Article 1: "Alzheimer's disease (AD) involves amyloid (A β) accumulation, oxidative damage and inflammation, and risk is reduced with increased antioxidant and anti-inflammatory consumption. The phenolic yellow curry pigment **curcumin has potent anti-inflammatory and antioxidant activities and can suppress oxidative damage, inflammation, cognitive deficits, and amyloid accumulation.** ... When fed to aged Tg2576 mice with advanced amyloid accumulation, (it) labeled plaques and reduced amyloid levels and plaque burden. Hence, (it) directly binds small ss-amyloid species to block aggregation and fibril formation in vitro and in vivo. These data suggest that **low dose curcumin effectively disaggregates A β as well as prevents fibril and oligomer formation**, supporting the rationale for (its) use in clinical trials preventing or treating AD."

J Biol Chem. 2004 Dec 7; Curcumin inhibits formation of A β oligomers and fibrils and binds plaques and reduces amyloid in vivo. Yang F, Lim GP, Begum AN, Ubeda OJ, Simmons MR, Ambegaokar SS, Chen PP, Kayed R, Glabe CG, Frautschy SA, Cole GM. GRECC (VA Medical) and Medicine, University of California Los Angeles, North Hills, CA 91343.

Article 2: "... we examined the effects of curcumin (Cur) and rosmarinic acid (RA) on the formation, extension, and destabilization of fA β (1-40) and fA β (1-42) at pH 7.5 at 37 degrees C in vitro. ... Cur and RA **dose-dependently inhibited fA β formation** from A β (1-40) and A β (1-42), as well as their extension. In addition, they **dose-dependently destabilized preformed fA β s.** ... Although the mechanism by which Cur and RA inhibit fA β formation from A β and destabilize preformed fA β in vitro remains unclear, they could be a key molecule for the development of therapeutics for AD."

J Neurosci Res. 2004 Mar 15;75(6):742-50. Curcumin has potent anti-amyloidogenic effects for Alzheimer's beta-amyloid fibrils in vitro. Ono K, Hasegawa K, Naiki H, Yamada M. Department of Neurology and Neurobiology of Aging, Kanazawa University Graduate School of Medical Science, Kanazawa, Japan.

Article 3: "... Curcumin has an extensive history as a food additive and herbal medicine in India and is also a potent polyphenolic antioxidant. To evaluate whether it could affect Alzheimer-like pathology in the APPSw mice, we tested a low (160 ppm) and a high dose ... on inflammation, oxidative damage, and plaque pathology. Low and high doses of (it) significantly lowered oxidized proteins and interleukin-1 β , a proinflammatory cytokine elevated in the brains of these mice. With low-dose but not high-dose curcumin treatment, the astrocytic marker GFAP was reduced, and insoluble beta-amyloid (A β), soluble A β , and plaque burden were significantly decreased by 43-50%. However, levels of amyloid precursor (APP) in the membrane fraction were not reduced. Microgliosis was also suppressed in neuronal layers but not adjacent to

plaques. **In view of its efficacy and apparent low toxicity, this Indian spice component shows promise for the prevention of Alzheimer's disease."**

J Neurosci. 2001 Nov 1;21(21):8370-7. The curry spice curcumin reduces oxidative damage and amyloid pathology in an Alzheimer transgenic mouse. Lim GP, Chu T, Yang F, Beech W, Frautschy SA, Cole GM. Departments of Medicine and Neurology, University of California, Los Angeles, Los Angeles, California 90095, USA.

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Arthritis and Turmeric Extract

Article 1: "The cytokine macrophage migration inhibitory factor (MIF) has recently emerged as a crucial factor in the pathogenesis of rheumatoid arthritis (RA). ... **Curcumin and caffeic acid were found to be the most potent inhibitors**, exhibiting IC(50) values in the submicromolar range in the ketonase assay. ... Our results reveal MIF as a possible target for the herbal anti-rheumatic agents."

Int Immunopharmacol. 2005 May;5(5):849-56. Epub 2005 Jan 27. Plant-derived anti-inflammatory compounds affect MIF tautomerase activity. Molnar V, Garai J. Department of Pathophysiology, Faculty of Medicine, University of Pecs, 12, Szigeti Str. H-7624 Pecs, Hungary.

Article 2: OBJECTIVE: "Therefore, we undertook studies to determine the antiarthritic efficacy and mechanism of action of a well-characterized turmeric extract using an animal model of rheumatoid arthritis (RA). RESULTS: **A turmeric fraction depleted of essential oils profoundly inhibited joint inflammation** and periarticular joint destruction in a dose-dependent manner... Consistent with these findings, inflammatory cell influx, joint levels of prostaglandin E(2), and periarticular osteoclast formation were inhibited by turmeric extract treatment. CONCLUSION: These translational studies demonstrate in vivo efficacy and identify a mechanism of action for a well-characterized turmeric extract that supports further clinical evaluation of turmeric dietary supplements in the treatment of RA.

Arthritis Rheum. 2006 Nov;54(11):3452-64. Efficacy and mechanism of action of turmeric supplements in the treatment of experimental arthritis. Funk JL, Frye JB, Oyarzo JN, Kuscuoğlu N, Wilson J, McCaffrey G, Stafford G, Chen G, Lantz RC, Jolad SD, Sölyom AM, Kiela PR, Timmermann BN. University of Arizona, Tucson, USA.

Cancer and Turmeric Extract

Article 1: "Curcumin, a natural product isolated from the spice turmeric, has been shown to exhibit a wide range of pharmacological activities including certain anti-cancer properties. It has been specifically **shown to be an effective inhibitor of angiogenesis** both in vitro and in vivo."

Bioorg Med Chem. 2005 Jun 2;13(12):4007-13. Synthesis and biological evaluation of aromatic enones related to curcumin. Robinson TP, Hubbard RB 4th, Ehlers TJ, Arbiser JL, Goldsmith DJ, Bowen JP. Center for Biomolecular Structure and Dynamics, Department of Chemistry, University of Georgia, Athens, GA 30602, USA.

Article 2: " ... Curcumin, one of the most studied chemopreventive agents, is a natural compound extracted from *Curcuma longa* L. that **allows suppression, retardation or inversion of carcinogenesis**. (It) is also described as an **anti-tumoral, anti-oxidant and anti-inflammatory agent capable of inducing apoptosis in numerous cellular systems**. ..."

Cancer Lett. 2005 Jun 8;223(2):181-90. Epub 2004 Nov 11. Chemopreventive and therapeutic effects of curcumin. Duvoix A, Blasius R, Delhalle S, Schnekenburger M, Morceau F, Henry E, Dicato M, Diederich M. Hopital Kirchberg, 9, rue Edward Steichen, L-2540 Luxembourg, Luxembourg.

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Cancer (colon, bladder and lung) and Turmeric Extract

Article 1: "The effects of curcumin on the growth of human **colon cancer** cell lines, HT-29 and WiDr cells were examined ... RESULTS: Curcumin inhibited the growth of HT-29 and WiDr cells in a dose-dependent fashion."

Korean J Gastroenterol. 2005 Apr;45(4):277-84. [The inhibitory effect of curcumin on the growth of human colon cancer cells (HT-29, WiDr) in vitro] [Article in Korean] Kim KH, Park HY, Nam JH, Park JE, Kim JY, Park MI, Chung KO, Park KY, Koo JY. Department of Internal Medicine, Kosin University College of Medicine, Busan 602-702, Korea.

Article 2: "CONCLUSIONS: Curcumin can suppress the growth, induce apoptosis of bladder cancer EJ cell in vitro. Its mechanism is related with down-regulations of the expressions of NF-kappaB and Cyclin D1. **(It) has great potential for the treatment of bladder cancer.**"

Zhong Yao Cai. 2004 Nov;27(11):848-50. [The effect of curcumin on bladder cancer cell line EJ in vitro] [Article in Chinese] Sun M, Yang Y, Li H, Su B, Lu Y, Wei Q, Fan T. Department of Urology of Westchina Hospital of Sichuan University, Chengdu.

Article 3: "OBJECTIVE: To investigate the mechanism of anti-tumor effects of curcumin on human **lung cancer** cell (A549). ... CONCLUSION: **Curcumin can interfere with ... growth cycle of A549 cell and suppress cell growth**. The suppression effect is concentration dependent. ..."

Zhong Yao Cai. 2004 Dec;27(12):923-7. [Research of anti-proliferation of curcumin on A549 human lung cancer cells and its mechanism] [Article in Chinese] Zhang J, Qi H, Wu C. Respiratory Department

of Xijing Hospital, The Fourth Military Medical University, Xi'an.

Cancer (breast and ovary) and Turmeric Extract

Article 1: "OBJECTIVE: To study the suppressive effects of curcumin on **breast carcinoma** cells and the mechanism. RESULTS: (It) inhibits the proliferation in both estrogen receptor (ER) positive MCF-7 cells and ER negative MDA-MB-231 cells. ... In addition, (it) exerts strong anti-invasive effects in vitro which was not estrogen dependent in the ER-negative MDA-MB-231 breast cancer cells. ... CONCLUSION: **(It) exerts multiple suppressive effects on breast carcinoma cells;** it's mechanism of chemoprevention is pleiotropic."

Zhonghua Yi Xue Za Zhi. 2003 Oct 25;83(20):1764-8. [Analysis of anti-proliferation of curcumin on human breast cancer cells and its mechanism] [Article in Chinese] Di GH, Li HC, Shen ZZ, Shao ZM. Hospital, Fudan University, Shanghai 200032, China.

Article 2: "The inhibitory effect of curcumin, the yellow-colored pigment from turmeric, on telomerase activity was analyzed in human mammary epithelial (MCF-10A) and **breast cancer** (MCF-7) cells. ... In MCF-7 cells, **telomerase activity decreased with increasing concentrations of (it), inhibiting about 93.4% activity at 100 microM concentration...**"

Cancer Lett. 2002 Oct 8;184(1):1-6. Curcumin inhibits telomerase activity through human telomerase reverse transcriptase in MCF-7 breast cancer cell line. Ramachandran C, Fonseca HB, Jhabvala P, Escalon EA, Melnick SJ. Department of Pathology, Miami Children's Hospital, 3100 SW 62nd Avenue, FL 33155, USA.

Article 3: "It was concluded that **curcumin could significantly inhibit the growth of ovary cancer cells.** The induction of apoptosis by down-regulating the expression of bcl-2 and p53 was probably one of its molecular mechanisms."

J Huazhong Univ Sci Technolog Med Sci. 2004;24(1):55-8. Growth-inhibitory effects of curcumin on ovary cancer cells and its mechanisms. Zheng L, Tong Q, Wu C. Department of Pathology, Union Hospital, Tongji Medical College, Huazhong University of Science and Technology, Wuhan 430022.

Melanoma and Turmeric Extract

Article 1: "**Curcumin induced melanoma cell apoptosis and cell cycle arrest,** ... Our results demonstrate that (it) arrested cell growth at the G(2)/M phase and induced apoptosis in human melanoma cells by inhibiting NFkappaB activation and thus depletion of endogenous nitric oxide. Therefore, (it) should be considered further as a potential therapy for patients with melanoma."

Melanoma Res. 2004 Jun;14(3):165-71. Inhibition of nuclear factor-kappaB and nitric oxide by curcumin induces G2/M cell cycle arrest and apoptosis in human melanoma cells. Zheng M, Ekmekcioglu S, Walch ET, Tang CH, Grimm EA. Department of Bioimmunotherapy, The University of Texas MD Anderson Center, Houston, TX 77030, USA.

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Other natural substances:

[Curcuma Longa](#)

[Curcumenol](#) (from Curcuma Phaeocaulis)

[Licorice Root Extract](#)

[Petty Spurge](#)

[Rosmarinic Acid](#)

[Vineatrol](#) (from Grapevine shoots)

[Withanolide](#) (from Ashwagandha)

[Zerumbone](#) (from Ginger)

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