



IF Relief

Stock #1175-4 (90 capsules)

Inflammation and oxidative stress, which increase free radical production and the resulting cellular degeneration, are recognized factors in many chronic and degenerative diseases, including cancer, cardiovascular disease, diabetes, hyperlipidemia (elevated fats in the blood), hypertension (high blood pressure), metabolic syndrome, obesity and neurodegenerative disorders such as Parkinson's disease and Alzheimer's disease. Inflammation and oxidative stress resulting from intense exercise or physical activity are also associated with decreased physical performance, muscular fatigue and muscle damage. Research suggests that supplementation and a diet rich in nutrients that help decrease inflammation and oxidative stress may offer protection against disease development and progression and increase longevity.¹⁻⁷

IF Relief contains a blend of herbal extracts that have demonstrated significant antioxidant, analgesic (pain-relieving) and anti-inflammatory effects. Each of the herbs in IF Relief has a long history of use in traditional and folk medicine for relief of pain and inflammation associated with arthritis, backache, headaches and other inflammatory conditions. Each capsule of IF Relief contains:

Andrographis paniculata is used therapeutically as a prophylactic (preventative measure) for the common cold; to boost immune function in bacterial and viral infections; and to relieve fever. Andrographis has also demonstrated significant antioxidant and anti-inflammatory effects in animal studies. Not only has andrographis been shown to inhibit the formation of oxygen-derived free radicals, but also to increase levels of antioxidant enzymes such as superoxide dismutase (SOD). Furthermore, research indicates that the active ingredients, andrographolide and neoandrographolide, appear to be responsible for much of the herb's analgesic, antioxidant and anti-inflammatory effects. Generally there are few side effects associated with the use of andrographis, and it has extremely low toxicity. However, the anti-fertility effect demonstrated in female mice (although high doses were used) suggests that andrographis should not be used by women who wish to become pregnant or during pregnancy, especially in the first trimester.⁸⁻¹⁸

Boswellia is a traditional remedy in Ayurvedic medicine in India that is used for the treatment of chronic inflammatory diseases, arthritis and low back pain. Multiple studies have confirmed boswellia's anti-inflammatory, anti-arthritic and analgesic activity, while clinical trials have shown promising results in patients with rheumatoid arthritis, chronic and ulcerative colitis, and Crohn's disease. For example, a randomized, double-blind placebo-controlled study involving 30 patients with osteoarthritis of knee found that all those receiving boswellia experienced a decrease in knee pain and frequency of swelling, as well as increased knee flexion and increased walking distance. Boswellia contains active substances known as boswellic acids, which have demonstrated potent anti-inflammatory properties. Boswellic acids work by inhibiting the production of leukotrienes—pro-inflammatory compounds that are believed to perpetuate chronic inflammatory diseases.¹⁹⁻²⁸

Mangosteen is a tropical fruit native to Malaysia and Indonesia. Scientists have discovered that mangosteen contains a class of naturally occurring compounds known as xanthenes, which demonstrate potent antioxidant, anti-inflammatory and neuroprotective (protecting against nerve damage) effects. One particular xanthone, gamma-mangostin, has exhibited some of the most active antioxidant activity of all the xanthenes. Gamma-mangostin has also demonstrated anti-inflammatory activity in animal studies, by potently inhibiting the production of prostaglandin E2 (PGE2), as well as directly inhibiting cyclooxygenase-2 (COX-2) activity. Prostaglandins are hormone-like substances that regulate many cellular functions within the body, including inflammatory processes. COX-2 is an enzyme responsible for the formation of prostaglandins that promote inflammation.²⁹⁻³⁷

Turmeric has been used for centuries in the Chinese and Ayurvedic systems of medicine, particularly as an anti-inflammatory and anti-arthritic agent. Modern research has shown that turmeric contains antioxidants known as curcuminoids, which demonstrate potent antioxidant and anti-inflammatory properties. Curcumin, the primary active curcuminoid, exhibits antioxidant activity that is comparable to vitamins A, C and E. In addition, there is preliminary data to suggest that curcumin may provide anti-inflammatory activity comparable to NSAIDs (non-steroidal anti-inflammatory drugs). Research indicates that turmeric's antioxidant and anti-inflammatory properties are due largely to curcumin's ability to protect DNA from breakage by singlet oxygen free-radicals and inhibit the activity of pro-inflammatory compounds, including leukotrienes, prostaglandins and COX-2. Use of curcumin has been shown to be safe in human trials, indicating no dose-limiting toxicity when administered at doses up to 10 grams (10,000mg) per day.³⁸⁻⁴⁸

White willow bark contains the active ingredient salicin, which is metabolized in the body into salicylic acid—a chemical relative of acetylsalicylic acid and the active ingredient in aspirin. Salicylic acid helps relieve inflammation

and pain by inhibiting COX-2 activity. COX-2 (cyclooxygenase-2) is an enzyme that stimulates the release of hormone-like compounds called prostaglandins, which cause inflammation and pain. Thus, willow bark is predominantly used as a natural anti-inflammatory for symptomatic relief of gouty arthritis and as an analgesic for mild neuralgic pains (nerve-related pain), toothaches and headaches. The German Commission E has approved willow bark for rheumatic ailments, headaches, and diseases accompanied by fever. A number of clinical studies have proven the efficacy of willow bark extract in painful inflammatory and degenerative rheumatic diseases, while randomized, double-blind studies have found standardized willow bark extract to be far more effective than placebo for treating chronic low back pain and osteoarthritis. In addition, a randomized, controlled clinical trial comparing the effects of willow bark extract to the prescription drug rofecoxib (a synthetic COX-2-inhibitor) found no significant difference in effectiveness between the two treatments, other than willow bark was about 40% less expensive than the drug. It is important to note that willow bark does not interfere with coagulation—it does not prolong bleeding time, nor does it inhibit platelet aggregation. In addition, willow bark's active ingredients are metabolized by the liver, by-passing the gastrointestinal tract and thus, avoiding gastrointestinal irritation.^{39,49-56}

References:

- ¹Edwards, T. "Inflammation, pain, and chronic disease: an integrative approach to treatment and prevention." *Alternative Therapies in Health and Medicine*; 2005, 11(6):20-27.
- ²De la Fuente, M., et. al. "The immune system in the oxidative stress conditions of aging and hypertension: favorable effects of antioxidants and physical exercise." *Antioxidant & Redox Signaling*; 2005, 7(9-10):1356-1366.
- ³Vincent, H.K. & Taylor, A.G. "Biomarkers and potential mechanisms of obesity-induced oxidant stress in humans." *International Journal of Obesity*; 2006, 30(3):400-418.
- ⁴Liebler PhD, D.C. "Disease Processes." <http://www.mc.vanderbilt.edu/lieblerlab/disease_processes.php>. Accessed October 2006.
- ⁵Morillas-Ruiz, J.M., et. al. "Effects of polyphenolic antioxidants on exercise-induced oxidative stress." *Clinical Nutrition*; 2006, 25(3):444-453.
- ⁶Konig, D., et. al. "Exercise and oxidative stress: significance of antioxidants with reference to inflammatory, muscular, and systemic stress." *Exercise Immunology Review*; 2001, 7:108-133.
- ⁷Casetta, I., et. al. "Oxidative stress, antioxidants and neurodegenerative diseases." *Current Pharmaceutical Design*; 2005;11(16):2033-2052.
- ⁸Barilla MS, J. "Andrographis paniculata." *Better Nutrition*; June 1999.
- ⁹Lenz, E. "Andrographis." *Gale Encyclopedia of Alternative Medicine*. <http://www.findarticles.com/cf_dls/g2603/0001/2603000154/p1/article.jhtml>. Accessed March 2004.
- ¹⁰Bone, K. "Andrographis for colds and sinus infection." *Townsend Letter for Doctors and Patients*; January 2003.
- ¹¹Puri, A., et. al. "Immunostimulant agents from Andrographis paniculata." *Journal of Natural Products*; 1993, 56(7):995-999.
- ¹²Chase, C. "Andrographis Monograph." *American Botanical Council*; 2002. <<http://www.herbalgram.org/youngliving/herbclip/review.asp?i=43232>>. Accessed October 2006.
- ¹³Sheeja, K., et. al. "Antioxidant and anti-inflammatory activities of the plant Andrographis paniculata Nees." *Immunopharmacology and Immunotoxicology*; 2006;28(1):129-140.
- ¹⁴Kamdem, R.E., et. al. "Mechanism of the superoxide scavenging activity of neoandrographolide - a natural product from Andrographis paniculata Nees." *Journal of Agricultural and Food Chemistry*; 2002, 50(16):4662-4665.
- ¹⁵Shen, Y.C., et. al. "Andrographolide prevents oxygen radical production by human neutrophils: possible mechanism(s) involved in its anti-inflammatory effect." *British Journal of Pharmacology*; 2002, 135(2):399-406.
- ¹⁶Singh, R.P., et. al. "Modulatory influence of Andrographis paniculata on mouse hepatic and extrahepatic carcinogen metabolizing enzymes and antioxidant status." *Phytotherapy Research*; 2001, 15(5):382-390.
- ¹⁷Trivedi, N.P. & Rawal, U.M. "Hepatoprotective and antioxidant property of Andrographis paniculata (Nees) in BHC induced liver damage in mice." *Indian Journal of Experimental Biology*; 2001, 39(1):41-46.
- ¹⁸Zoha, M.S., et. al. "Antifertility effect of andrographis paniculata in mice." *Bangladesh Medical Research Council Bulletin*; 1989, 15(1):34-37.
- ¹⁹Boswellia serrata." *Alternative Medicine Review*, 1998, 3(4):306-307.
- ²⁰Ammon, H.P. [Boswellic acids (components of frankincense) as the active principle in treatment of chronic inflammatory diseases]. *Wiener Medizinische Wochenschrift*, 2002, 152(15-16):373-378.
- ²¹Weber, C.C., et. al. "Modulation of Pgp function by boswellic acids." *Planta Medica*; 2006, 72(6):507-513.
- ²²Kimmatkar, N., et. al. "Efficacy and tolerability of Boswellia serrata extract in treatment of osteoarthritis of knee—a randomized double blind placebo controlled trial." *Phytomedicine*; 2003, 10(1):3-7.
- ²³Kiela, P.R., et. al. "Effects of Boswellia serrata in mouse models of chemically induced colitis." *American Journal of Physiology. Gastrointestinal and Liver Physiology*; 2005, 288(4):G798-808.
- ²⁴Gupta, I., et. al. "Effects of gum resin of Boswellia serrata in patients with chronic colitis." *Planta Medica*; 2001, 67(5):391-395.
- ²⁵—. "Effects of Boswellia serrata gum resin in patients with ulcerative colitis." *European Journal of Medical Research*; 1997, 2(1):37-43.
- ²⁶Roy, S., et. al. "Regulation of vascular responses to inflammation: inducible matrix metalloproteinase-3 expression in human microvascular endothelial cells is sensitive to antiinflammatory Boswellia." *Antioxidants & Redox Signaling*; 2006, 8(3-4):653-660.
- ²⁷—. "Human genome screen to identify the genetic basis of the anti-inflammatory effects of Boswellia in microvascular endothelial

- cells." *DNA and Cell Biology*; 2005, 24(4):244-255.
- ²⁸Calder, P.C. "n-3 polyunsaturated fatty acids, inflammation, and inflammatory diseases." *American Journal of Clinical Nutrition*; 2006, 83(6 Suppl):1505S-1519S.
- ²⁹"Mangosteen" in *The Columbia Encyclopedia, Sixth Ed.* Columbia University Press, 2003.
<<http://www.bartleby.com/65/ma/mangoste.html>>. Accessed July 2004.
- ³⁰Parkinson, R. "Mangoes, Lychees and Mangosteen." *Chinese Cuisine*.
<<http://chinesefood.about.com/library/weekly/aa072100a.htm>>. Accessed July 2004.
- ³¹Weecharansan, W., et. al. "Antioxidative and neuroprotective activities of extracts from the fruit hull of mangosteen (*Garcinia mangostana* Linn.)." *Medical Principles and Practice*; 2006, 15(4):281-287.
- ³²Moongkarndi, P., et. al. "Antiproliferation, antioxidation and induction of apoptosis by *Garcinia mangostana* (mangosteen) on SKBR3 human breast cancer cell line." *Journal of Ethnopharmacology*; 2004, 90(1):161-166.
- ³³Jiang, D.J., et. al. "Pharmacological effects of xanthenes as cardiovascular protective agents." *Cardiovascular Drug Reviews*; 2004, 22(2):91-102.
- ³⁴Jung, H.A., et. al. "Antioxidant xanthenes from the pericarp of *Garcinia mangostana* (Mangosteen)." *Journal of Agricultural and Food Chemistry*; 2006, 54(6):2077-2082.
- ³⁵Nakatani, K., et. al. "Inhibitions of histamine release and prostaglandin E2 synthesis by mangosteen, a Thai medicinal plant." *Biological & Pharmaceutical Bulletin*; 2002, 25(9):1137-1141.
- ³⁶—. "gamma-Mangostin inhibits inhibitor-kappaB kinase activity and decreases lipopolysaccharide-induced cyclooxygenase-2 gene expression in C6 rat glioma cells." *Molecular Pharmacology*; 2004, 66(3):667-674.
- ³⁷—. "Inhibitions of histamine release and prostaglandin E2 synthesis by mangosteen, a Thai medicinal plant." *Biological & Pharmaceutical Bulletin*; 2002, 25(9):1137-1141.
- ³⁸*Curcuma longa* (turmeric). Monograph." *Alternative Medicine Review*; 2001, 6 Suppl:S62-66.
- ³⁹*Herbal Medicine: Expanded Commission E Monographs*. Integrative Medicine Communications, 2000.
- ⁴⁰Lininger DC, S., et al. *The Natural Pharmacy*. Rocklin, CA: Prima Health, 1998.
- ⁴¹"Turmeric." *Health Counselor*; 1997, 9(2):40-42.
- ⁴²Mead, N. "Turmeric (*Curcuma longa*)." *Natural Health*; September/October 1997:135.
- ⁴³Fetrow PharmD, C. & Avila PharmD, J. *Professional's Handbook of Complementary & Alternative Medicines*. Springhouse, PA: Springhouse Corp., 1999.
- ⁴⁴Sharma, R.A., et. al. "Curcumin: the story so far." *European Journal of Cancer*; 2005, 41(13):1955-1968.
- ⁴⁵Lim, G.P., et. al. "The curry spice curcumin reduces oxidative damage and amyloid pathology in an Alzheimer transgenic mouse." *The Journal of Neuroscience*; 2001, 21(21):8370-8377.
- ⁴⁶Satoskar, R.R., et. al. "Evaluation of anti-inflammatory property of curcumin (diferuloyl methane) in patients with postoperative inflammation." *International Journal of Clinical Pharmacology, Therapy and Toxicology*; 1986, 24(12):651-654.
- ⁴⁷Chainani-Wu, N. "Safety and anti-inflammatory activity of curcumin: a component of tumeric (*Curcuma longa*)." *Journal of Alternative and Complementary Medicine*; 2003, 9(1):161-168.
- ⁴⁸Aggarwal, B.B., et. al. "Anticancer potential of curcumin: preclinical and clinical studies." *Anticancer Research*; 2003, 23(1A):363-398.
- ⁴⁹Presser PharmD, A. *Pharmacist's Guide to Medicinal Herbs*. Petaluma, CA: Smart Publications, 2000.
- ⁵⁰White MD, L. "Pain-free joints, naturally." *Herbs For Health*; 2001, 6(3):38-42.
- ⁵¹"Willow Bark: The Aspirin Raw Material." *Nutrition Science News*; June, 2001.
- ⁵²Khalsa, K. "Treating carpal tunnel syndrome." *Herbs For Health*; 2001, 6(4):10-12.
- ⁵³Chrubasik, S. & Pollak S. [Pain management with herbal antirheumatic drugs]. *Wiener Medizinische Wochenschrift*; 2002;152(7-8):198-203.
- ⁵⁴Chrubasik, S., et. al. "Treatment of low back pain exacerbations with willow bark extract: a randomized double-blind study." *American Journal of Medicine*; 2000, 109(1):9-14.
- ⁵⁵Schmid, B., et. al. "Efficacy and tolerability of a standardized willow bark extract in patients with osteoarthritis: randomized placebo-controlled, double blind clinical trial." *Phytotherapy Research*; 2001, 15(4):344-350.
- ⁵⁶Chrubasik, S., et. al. "Treatment of low back pain with a herbal or synthetic anti-rheumatic: a randomized controlled study. Willow bark extract for low back pain." *Rheumatology (Oxford)*; 2001, 40(12):1388-1139.