InflaCalm SAP

Targeted nutraceutical therapy for pain management

Prostaglandins are a class of hormone-like compounds called eicosanoids, which have biological activities in tissue repair and inflammation, amongst other actions. The prostaglandin 2-series (PG_2) are known to be potent proinflammatory mediators synthesized by the cyclooxygenase (COX) enzymes, while the prostaglandin 1-series (PG_1) and 3-series (PG_3) have anti-inflammatory action. Managing the balance of prostaglandins is a major aspect of mitigating pain and inflammation, and the modulation of the COX and other enzymes controlling the production of inflammatory mediators is the target of therapy. The components of **InflaCalm SAP** in synergistic combination maximize the delivery, absorption, and thereby anti-inflammatory effect of these well-researched nutraceuticals and herbs.

ACTIVE INGREDIENTS

Each enteric vegetable capsule contains:

Bromelain (stem bromelain from *Ananas comosus*) (5,400,000 FCC PU)	150 mg
Turmeric (*Curcuma longa*) root extract, 10% soluble curcuminoids, providing curcumin I, demethoxycurcumin, and bisdemethoxycurcumin	150 mg
Quercetin	100 mg
Rutin	100 mg
Indian frankincense (*Boswellia serrata*), 70% organic acids, 35% boswellic acid	100 mg
Trypsin (from *Sus scrofa*) (7500 USP trypsin units)	50 mg
Serratiopeptidase (48 000 SU)	20 mg
Black pepper fruit extract (*Piper nigrum*), 95% piperine	1.5 mg

Other ingredients: Vegetable magnesium stearate and silicon dioxide in a delayed-release vegetable capsule made of medium-chain triglycerides, sodium alginate, oleic acid, stearic acid, ethylcellulose, hypromellose, and purified water.

This product is non-GMO.

Contains no: Gluten, wheat, eggs, dairy, yeast, citrus, preservatives, artificial flavour or colour, starch, or sugar.

InflaCalm SAP is available in bottles of 90 or 180 capsules.

DIRECTIONS FOR USE

Adults: Take 2 capsules once daily with food or as directed by your healthcare practitioner. Swallow whole; do not crush or chew. Consult a healthcare practitioner for use beyond 7 days.

INDICATIONS

InflaCalm SAP may be used:

- In the treatment of acute and chronic pain.
- In the treatment of musculoskeletal injuries.
- To enhance postsurgical recovery and wound healing.
- In the adjunctive treatment and prevention of chronic inflammatory disorders.

To maximize anti-inflammatory action, **InflaCalm SAP** may be combined with the **Trident SAP** line of omega-3 fatty acids from fish oil.

CAUTIONS AND WARNINGS

Do not use if you are pregnant or breast-feeding. Consult a healthcare practitioner prior to use if you are taking antiplatelet medication; if you have gallstones or a bile duct obstruction; if you have excess stomach acid; if you have gastrointestinal lesions/ulcers, or having a surgery; are taking anticoagulant or blood-thinning agents, anti-inflammatory agents, or antibiotics; or if you are taking other medications or natural health products, as black pepper/piperine may alter their effectiveness. Discontinue use and consult a healthcare practitioner if symptoms persist or worsen.

Known adverse effects: Hypersensitivity/allergy, nausea, vomiting, and diarrhoea have been known to occur; in which case, discontinue use and consult a healthcare practitioner.

PURITY, CLEANLINESS, AND STABILITY

All ingredients listed for all **InflaCalm SAP** lot numbers have been tested by a third-party laboratory for identity, potency, and purity.

Scientific Advisory Panel (SAP): adding nutraceutical research to achieve optimum health

NFH®

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INFLAMMATION AND EICOSANOID SYNTHESIS

The inflammatory leukotrienes (LT) and prostaglandin 2-series (PG_2) of inflammatory mediators are dependent on the enzymes phospholipase-A_2, 5-lipoxygenase (5-LOX) and the cyclooxygenase (COX) complex (COX-1 and COX-2), and their major substrate is arachidonic acid.

It is well-established and generally accepted that modulating the prostaglandin balance to favor the PG_1 and PG_3 series over PG_2 reduces inflammation and may be used to mitigate pain. Increasing plant sources of essential fatty acids containing α-linoleic and α-linolenic acids (flax seed, hemp, pumpkin seeds, borage, evening primrose, blackcurrant), as well as eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA) from fish oils, while decreasing the intake of arachidonic acid from animal meats should be a consideration in any anti-inflammatory protocol.

Many pharmaceutical options, such as nonsteroidal anti-inflammatory drugs (NSAIDs) and corticosteroids, exist that are capable of inhibiting the COX, LOX and phospholipase-A_2 enzymes, respectively. However, they are associated with a myriad of unwanted side effects, including increased gastrointestinal permeability and damage, increased risk of cardiovascular events, impaired tissue repair and wound healing, adrenal dysfunction and hormonal imbalances, impaired growth and development, and blood-thinning effects. Botanical options and proteolytic enzymes may be as effective as pharmaceutical treatments, may be more cost-effective, and may be safer for some populations.

BOSWELLIA, CURCUMIN, QUERCETIN AND PIPERINE

Boswellia (*Boswellia serrata*) and curcumin (from the turmeric spice, *Curcuma longa*) have been used historically in Ayurvedic medicine for the treatment of rheumatic and inflammatory conditions. Primary efficacy for the treatment of pain and inflammation with boswellia is attributed to the boswellic acids, which are selective and potent inhibitors of 5-LOX.[1] Historically, the common preparations of boswellia may contain minimal or varying boswellic acid content. **InflaCalm SAP** contains boswellia extract standardized to 70% boswellic acids.

Curcumin is a potent antioxidant and has been shown to inhibit both COX and 5-LOX, reducing PG_2 and LT in both in vitro and in vivo studies.[1] In postoperative patients, oral curcumin has been shown to be as effective as NSAIDs for controlling inflammation at daily doses of 1200 mg/d without side effects. Curcumin is extremely safe and non-toxic, but should be considered contraindicated in biliary duct obstruction.[1, 2] Oral bioavailability and absorption of curcumin has long been a concern and its administration criticized, despite its clinical efficacy.[3] Human studies have now shown that concomitant administration of piperine can increase curcumin bioavailability by 2000% and absorption by over 22%, while significantly increasing its half-life in the body.[2, 3]

Quercetin is a bioflavonoid found in many plants and vegetables, and is known to inhibit phospholipase-A_2, 5-LOX and the COX enzymes, as well as the production of the PG_2 series, TNF-α, nitric oxide and nitric oxide synthase,[1, 4, 5] all factors in inflammation, injury and pain. Quercetin bioavailability may be enhanced by concomitant administration of bromelain.[6]

BROMELAIN, TRYPSIN AND RUTIN

Bromelain is sourced from the pineapple (*Ananas comosus*) stem. Bromelain is a proteolytic enzyme which has received a wealth of attention in the scientific literature for its anti-inflammatory and fibrinolytic activities, as well as its ability to interfere with the growth of malignant cells and inhibit platelet aggregation. The use of bromelain is popular for the reduction of inflammation in arthritis, sports or musculoskeletal injuries, postsurgery recovery and wound healing, respiratory conditions, as a digestive aid, and in other inflammatory conditions.[1, 7] Bromelain promotes PG_1 production and inhibits PG_2 in a dose-dependent manner and may exhibit more anti-inflammatory action than prednisone.[1] Bromelain is also known to inhibit bradykinin formation and limit fibrin production.[7] Due to its potent effects on the prostaglandin systems, bromelain may theoretically have blood-thinning and antithrombotic effects and interact with oral anticoagulants, but this has not yet been shown in human studies.[1, 7]

The oral combination of bromelain, the proteolytic enzyme trypsin, and the bioflavonoid rutin has been well-studied in humans in the literature,[8, 9] and specifically compared to diclofenac for the treatment of osteoarthritic hip pain.[8] Results of this double-blind, randomized study showed equal efficacy compared to diclofenac for pain reduction, without the unwanted increased risk of negative effects of anemia and increase in liver enzymes. In a randomized controlled trial involving the comprehensive treatment of rotator-cuff tendinitis in Canadian postal workers, the combination of bromelain, trypsin and rutin contributed to a statistically significant reduction of shoulder pain and increased quality of life compared to control.[9]

SERRATIOPEPTIDASE

Serratiopeptidase (also known as serrapeptase, serrapeptidase, or serratia peptidase) is a proteolytic enzyme derived from the nonpathogenic intestinal enterobacteria *Serratia* sp. E-15, found in silkworms. Serratiopeptidase is known to have anti-inflammatory effects as well as the ability to degrade insoluble proteins such as fibrin, and reduce the inflammatory mediator bradykinin. In human studies, serratiopeptidase efficacy for the reduction of pain and inflammation has been proven in various postsurgical conditions. A randomized, placebo-controlled human trial demonstrated an improved response in dental postsurgical swelling and pain for serratiopeptidase (5 mg) when compared to paracetamol (1000 mg).[10] In rats, high doses of serratiopeptidase have been shown to be comparable to diclofenac in efficacy for both acute and chronic inflammation.[11]

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