

Mechanisms of Anti-inflammatory Action*

Boswellia Serrata

- Inhibits TNF-alpha-induced inflammatory response
- Inhibit enzymes (MMP) which catalyze connective tissue breakdown
- Acetyl-11-keto-beta-boswellic acid (AKBA) inhibits NF-kappaB which activates many genes involved in inflammatory responses.
- Inhibits the formation and release of certain inflammatory leukotrienes.
- Inhibits conversion of arachidonic acid to inflammatory leukotrienes.
- Reduces complement activity, known to trigger inflammatory mediators.
- Prevents the breakdown of connective tissue in inflammatory arthritic conditions by reducing glycosaminoglycan (GAG) degradation
- Reduces enzymes that are elevated in inflammatory conditions like arthritis (such as glutamic pyruvic transaminase, glycohydrolase, and beta-glucuronidase)

Horsetail

- Horsetail possesses weak diuretic properties, and therefore reduces the swelling of inflamed tissues, thereby reducing pressure on adjacent nerves

Stinging Nettle

- Potently suppresses human leukocyte elastase (HLE), one of the most destructive enzymes released by certain white blood cells during the inflammatory process
- Inhibits TNF-alpha, NF-Kappa B, Leukotiene and Prostaglandin synthesis
- Lowers levels of interleukin-6 and high-sensitivity C-reactive protein (hs-CRP)

Celery

- Inhibits mRNA expression of COX-2 in inflammatory responses
- Suppresses inflammatory mediator release by blocking nuclear factor (NF)-kappaB activation pathways
- Reduces LPS-induced interleukin (IL)-6 production in the brain
- Celery possesses weak diuretic properties, and reduces iNOS, an inflammatory mediator

Garlic

- Enhances phagocytosis, white blood cell production, natural killer cell activity and prevents immune suppression

*Above based on Natural Standard database, and a review by Clarke and Mullin, which investigated the immunomodulatory effects of various alternative and complementary therapies, including Boswellia, and the variety of mechanisms by which they disrupt the pro-inflammatory cascade.