The ancient herb boswellia has been found to offer benefits similar to those of the non-steroidal anti-inflammatory agents but without their harmful side effects.

**Uses of Boswellia**

The ancient herb boswellia (Boswellia serrata) has been used for thousands of years to treat conditions that, in recent years, have been found to be caused by inflammation. Originating in Africa, China, and the Middle East, boswellia herbal extract is derived from the sappy resin of the boswellia tree. In the 1970s, German scientists discovered that boswellia produces therapeutic effects similar to those of the non-steroidal anti-inflammatory (NSAID) compounds ibuprofen and aspirin.

Unlike boswellia, however, NSAIDs work by inhibiting the cyclooxygenase-2 (COX-2) enzymes. Unfortunately, medications that inhibit COX-2 often inhibit COX-1, which is needed to maintain a healthy stomach lining and common side effects include gastrointestinal bleeding.

**Comparison to NSAIDs**

Boswellia differs from the NSAIDs in its mode of action. Boswellia has been shown to reduce inflammation in both osteoarthritis and rheumatoid arthritis, inflammatory bowel disease, and other autoimmune conditions by blocking the lethal pro-inflammatory enzyme 5-lipoxygenase (5-LOX).

A number of immune system chemicals released during the inflammatory response contribute to the chronic inflammation seen in atherosclerosis, osteoarthritis and certain autoimmune diseases. Blocking these pro-inflammatory chemicals reduces symptoms of inflammation and helps taper the autoimmune mechanism.

**The Actions of Boswellia**

Although the benefits of boswellia are similar to those of the non-steroidal anti-inflammatory drugs, boswellia works by blocking 5-LOX, which is the first enzyme released in the metabolic pathway leading to the synthesis of the immune system cytokines known as leukotrienes. Leukotrienes are harmful inflammatory substances thought to directly influence the disease process in a number of different disorders, including rheumatoid arthritis, cancer, and asthma.

The active ingredients of boswellia, the boswellic acids, decrease the activity of another pro-inflammatory enzyme known as human leukocyte elastase (HLE). HLE and leukotriene levels are increased in many inflammatory diseases and allergic reactions. To date, boswellia is the only substance known to reduce levels of both HLE and
leukotrienes. In 2005, researchers found that boswellia works in part by altering the expression of the cytokine tumor necrosis factor alpha (TNF-α), another integral component in inflammation. An excess of TNF-α promotes chronic inflammation. Applying boswellia to cells has been shown to decrease the TNF-α-induced expression of cell adhesion and matrix metalloproteinase proteins, which are biochemicals related to endothelial dysfunction, cancer metastasis (spreading), arthritis, and other disease processes.

**Benefits in Arthritis and Crohn’s Disease**

Researchers have found that boswellia helps prevent the deterioration of cartilage and joint tissue. This suggests that boswellia may relieve symptoms in arthritis by inhibiting the breakdown of connective tissues that is caused by tumor necrosis factor-alpha-induced expression of matrix metalloproteinase enzymes. Studies in both humans and dogs show after as little as two weeks of boswellia therapy include reduced pain, stiffness, and lameness.

In patients with rheumatoid arthritis and Crohn's disease, boswellia can help reduce the immune cells that promote inflammation while increasing the number of immune cells that inhibit inflammation (anti-inflammatory cells). In studies of patients with inflammatory bowel disease, ulcerative colitis and Crohn’s disease boswellia reduced gastrointestinal inflammation and tissue damage.

**Boswellia Preparations**

Different preparations of boswellia vary in their potency and biochemical makeup. Scientists in Germany have found that the biologically active ingredient AKBA that is found in boswellia is responsible for its therapeutic properties. In most boswellia preparations, however, AKBA only represents a small fraction of the ingredients.

Several years ago, researchers developed methods to prepare a compound with concentrations of AKBA greater than 30%. The resulting product has been found to be safe and well-tolerated. This product is patented and trademarked under the name 5-LOXIN. To date, 5-LOXIN inhibits 5-LOX more effectively than the highest quality boswellia formulations. In studies 5-LOXIN produced a 27 percent reduction in inflammation compared to 35 percent with ibuprofen that was free of the side effects associated with ibuprofen and other NSAIDs.

**Resources:**

