

# Expert Herbal Reality Resource

## Boswellia

### Names

**Botanical Name** *Boswellia serrata* Roxb.

**Family:** Burseraceae

**Common names:** Indian frankincense, Indian olibanum (Eng) Salaibaum (Ger), baswellie-dentelee, arbre à encens (Fr), incenso (Ital), incienso (Sp), salai guggul (Hindi), shallaki, kapitthaparni, konkanadhoopam (Sanskrit)

**Alternate botanical names:** The frankincense referred to in the Bible is *Boswellia carterii*.



### Description

*Boswellia serrata* is a deciduous, medium-sized tree native to the dry hills of India, especially Rajasthan and Gujerat. The leaves are opposite, sessile and have serrated edges. Flowers occur in auxiliary racemes, shorter than the leaves, are small, aromatic and white. The fruit is three-angled, splits into three valves and contains a single compressed seed. The resin is extracted at the hottest time of year as an exudate from the branches: when the bark is cut, the secretion exudes and solidifies to a gum-like consistency after exposure to the air.

### Constituents

- **Oleo-gum resin:** including pentacyclic triterpene (boswellic) acids and tetracyclic triterpene acids (including tirucallic acid).
- **Essential oil:** including alpha-thujene, pinene, dipentene and other monoterpenes, as well as sesquiterpenes

### Traditional use

In traditional Indian medicine boswellia is used as a stimulant and expectorant (internal use) and an astringent and anti-inflammatory agent (topically). It was used for pulmonary diseases, especially if chronic, rheumatic disorders, diarrhoea, dysentery, painful periods and liver disorders. It is also used for general weakness and to improve appetite.

The plants essential oils are said to support the spiritual body and work where we would now place the pituitary and hypothalamus gland.

### Traditional actions

The traditional Ayurvedic characteristics of boswellia are

**Rasa** (taste) Bitter, pungent, astringent, sweet.

**Virya** (action) Heating and cooling.

**Vipaka** (post-digestive effect) Pungent.

**Guna** (quality) Dry, light, penetrating.

**Dosha** effect balances *vata*, *pitta* and *kapha*, in excess may aggravate either *pitta* or *vata*.

**Dhatu** (tissue) Plasma, blood, muscle, fat, bone, nerve, reproductive.

**Srota** (channel) Circulatory, nervous, reproductive.

Traditional Ayurvedic uses are

**Amanashak** Destroys toxins.

**Kaphavatahara** Reduces kapha and vata.

**Rasayana** Rejuvenative.

**Striroga** Useful in gynaecology.

**Shirovirechan** Cleansing to the orifices of the head.

**Anuloma** Redirects the flow of vata downwards.

**Lekhana** Clears adhesions from the body.

**Vedana sthapana** Analgesic.

**Vajikarana** Aphrodisiac.

**Sandhana** Bone mender.

## What practitioners say

**Inflammation:** useful in inflammatory diseases, especially of the joints (osteo and rheumatoid arthritis), lungs (especially asthma), inflammatory bowel disease (eg Crohn's and ulcerative colitis) and skin (eg psoriasis).

**Gut health:** boswellia can be considered in long-term inflammation gut disease, like Crohns and ulcerative colitis or any other persistent low gut problem with inflammatory or dysbiosis elements.

**Pain:** all types of pain, specifically arthritic or post trauma where there is inflammation and congestion. Energetically applied to cold and damp types of pain and swelling (ie. where the pain is relieved by heat).

**Women's health:** a traditional remedy in the treatment of fibroids, cysts, painful periods with clots and pain caused by congestion the uterus.

**Men's health:** a specific herb for impotence and sexual debility; it brings blood to the reproductive organs and therefore facilitates issues such as erectile function.

**External uses:** used to hasten the healing of wounds, broken bones and bruises, especially it there is local inflammation.



## Evidence

From laboratory studies it appears that boswellic acid inhibits the inflammatory enzyme 5-lipoxygenase (5-LOX) with little effect on cyclo-oxygenase (COX). COX enzymes produce inflammatory prostaglandins and are the main target of conventional non-steroidal anti-inflammatories (NSAIDs) like ibuprofen. 5-LOX generates leukotrienes. These are also potent inflammatory agents that particularly are involved in asthmatic problems, but perhaps even more significantly in damage to the gut wall. One reason conventional NSAIDs can damage the stomach is that they upset the COX/LOX balance and allow more leukotrienes to be produced.<sup>1</sup> Boswellia's mechanism of action is

therefore quite distinct from NSAIDs and are not likely to have their complications. Other immunological and anti-inflammatory mechanisms have been identified, including the inhibition of NFkappaB activation and consequent down regulation of proinflammatory cytokines TNF-alpha and decrease of IL-1, IL-2, IL-4, IL-6 and IFN-gamma.<sup>ii</sup> There is additional evidence pointing to an intriguing possible role on another anti-inflammatory marker, cathepsin G, this demonstrated against placebo *ex vivo*, that is in blood taken after oral consumption.<sup>iii</sup>

A double-blind trial on 48 patients with osteoarthritis of the knee with a boswellia extract or placebo for a period of 120 days, revealed that boswellia treatment significantly improved the physical function of the patients by reducing pain and stiffness compared with placebo. Radiographic assessments showed improved knee joint gap and reduced spurs. Boswellia also significantly reduced the serum levels of C-reactive protein, an inflammatory marker associated with osteoarthritis.<sup>iv</sup>

Inflammatory mediators are strongly associated with ischaemic stroke. Unlike NSAIDs, boswellic acids cross the blood-brain barrier and there is a case for appropriate modulation of inflammatory pathways in aiding stroke recovery. A double-blind placebo-controlled pilot trial randomized 80 ischaemic stroke patients within 72 hours of onset of neurological signs, for a month follow-up. Patients who were allocated to the boswellia group had a significant recovery in neurological function during the 1-month follow-up, compared with the placebo. The levels of plasma inflammatory markers were significantly decreased after 7 days of intervention in TNF- $\alpha$ , IL-1 $\beta$ , IL-6, IL-8, and PGE2.<sup>v</sup>

Patients irradiated for brain tumours often suffer from cerebral oedema and are usually treated with dexamethasone, which has various side effects. To investigate the activity of boswellia a prospective, randomized, placebo-controlled, double-blind, pilot trial was conducted. Forty-four patients with primary or secondary malignant cerebral tumours were randomly assigned to radiotherapy plus either boswellia 4200 mg/day or placebo. Compared with baseline and measured immediately after the end of radiotherapy and treatment, a reduction of cerebral oedema of >75% as measured by MRI was found in 60% of patients receiving boswellia and in 26% of patients receiving placebo.<sup>vi</sup>

Local effects in reducing inflammation has been supported in an uncontrolled clinical trial that showed boswellia can reduce the use of topical corticosteroids and is able to reduce skin rash and other superficial symptoms after radiation for breast cancer.<sup>vii</sup>

## Safety

There are rare cases of diarrhoea and allergy. No major problems have been associated with normal doses and there are no documented interactions with conventional drugs.

## Dosage

**Tincture** (1:5 in 90% alcohol): 10ml per day\*.  
**Powdered resin:** 2-5 g

\* Resin is insoluble in water and needs alcohol to dissolve it; if using tinctures add 10% licorice first as a saponin containing suspending agent to prevent precipitation and to reduce its harsh flavour.



## References

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- vi Kirste S, Treier M, Wehrle SJ, et al. (2011) *Boswellia serrata* acts on cerebral edema in patients irradiated for brain tumors: a prospective, randomized, placebo-controlled, double-blind pilot trial. *Cancer*. 117(16): 3788-3795.
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