

GUGGULU – A POTENT ANTI - INFLAMMATORY AGENT

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ABSTRACT

Guggulu, a herb, the useful part of which is resin is one of the commonest content of herbal or herbomineral combinations mentioned in ayurvedic classics. A thoughtful insight of literature reveals that this resin possess pharmacological properties which are comparable to modern anti- inflammatory drugs. In the present conceptual study, literature review of *Guggulu* is presented with the explanation of mechanism of action as an potent anti-inflammatory agent.

KEYWORDS: Anti- inflammatory drug, Guggulu.

Historical review of drugs

Guggulu



Image-1



Image-2

- 🔗 **Botanical name** : *Commiphora wightii*, Syn. *C.mukul*
- 🔗 **Natural order** : Burseraceae
- 🔗 **Classical names** : *Guggulu, Devadhupa, Jatayu, Kaushika, Pura, Mahishaksh, Palankasha, Ulukhala, Kumbholukhalaka*
- 🔗 **Vernacular names:**
- 🔗 **English** - Hill mango, *Gum gugul*, Indian bedellium.
- 🔗 **Hindi** - *Guggulu, Gogil, Guggulu, Gugal, Mukul, Ranghan.*

Botanical description

A small tree or shrub with 1.2- 1.8 m high. Leaves palmately trifoliate, the terminal leaflet biggest, margin crenate. Flowers brownish-red, in fascicles of 2-3; pedicels very short. Drupes red when ripe, 6-8 mm diam, ovoid, acute; epicarp 4- valved; pyrenes ovate, acute, readily splitting into two.

Parts used: gum.

Tapping: The best tapping period for the gum resin (*guggulu*) has been recognized from the middle of the december to the end of february. The plants of 7 years of age group are suitable for tapping the gum resin. The incisions of 0.8-1 cm. Deep are made on the main trunk and thick branches after dipping the knife in the solution of sulfuric acid at the angle of 60 degree. The yellow fragrant liquid starts coming out just after incision for hours depending upon the plant. This liquid solidified in

a day or two and the same is collected after a day or two. The collected gum is Guggulu, which is in vermicular, or stalactites pieces, pale yellow, brown or dull green in colour with a bitter aromatic taste and balsamic odour (Bhatt and Dixit 1964).

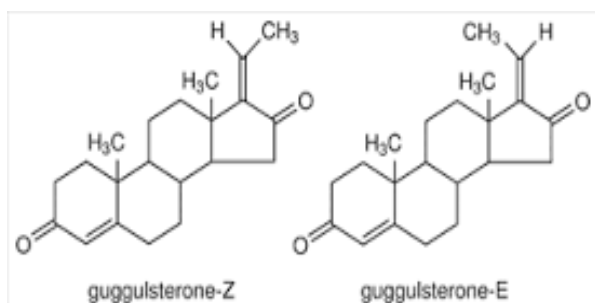
Ayurvedic pharmacological properties

- ❖ *Rasa- Tikta, Katu*
- ❖ *Guna- Laghu, Ruksha, Tikshna, Vishada, Sara, Sukshma, Sugandhi (dry Guggulu), Snigdha, Pichchhila (fresh Guggulu).*
- ❖ *Veerya- Ushna.*
- ❖ *Vipaka- Katu.*
- ❖ *Prabhava-Tridoshahara, Rasayana.*
- ❖ *Doshaghната- Vatakaphashamaka.*

Chemical composition

Three Guggulsterols i, ii and iii and several pregnanone derivatives, z-guggulsterol, guggulsterol vi, two hypolipaeamic agents, viz., z- and e guggulsterones (4, 17(20)-pregnadien-3, 16-diones). Guggulipid is hypocholesteremic. *Guggulu* resin contains.

Steroids - guggulsterones z and e, guggulsterols i-v, diterpenoids; volatile oil, including other constituents, contains a terpene hydrocarbon cambrene a.e and z guggulsterones.



Mechanism of action

Nuclear factor – kappa B (NF-κB) is a protein complex that controls transcription of DNA, cytokine production and cell survival. NF-κB is found in almost all animal cell types and is involved in cellular responses to stimuli such as stress, cytokines, free radicals, heavy metals, bacterial and viral antigens. NF-κB plays a key role in regulating the immune response to infection. Incorrect regulation of NF-κB has been linked to inflammatory and autoimmune diseases.

Guggulsterone has been found to potently inhibit the activation of nuclear factor-κb (nf-κb), a critical regulator of inflammatory responses. Such repression of nf-κb by Guggulsterone has been proposed as a mechanism of the anti-inflammatory effect of Guggulsterone.

A dosage of 500 mg TDS for maximum of 24 weeks is effective in joint disorders involving inflammatory pathology.

Side – effects

Guggulu may cause allergic reactions such as rashes and itching in some individuals.

Long term use may cause headaches, nausea, vomiting, diarrhoea, hiccups.

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