

# A Review on Analgesic Herbs

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**Abstract:** Analgesics are the painkiller substances, which acts by the absence of pain without consciousness. The analgesic is the word derived from Greek an - without algos -pain. Analgesic drugs, acts on the peripheral and central nervous systems. Various sources of analgesic drugs, some synthetic drugs like NSAID's, Cox-2 inhibitor, Dichlofenac sodium, Paracetamol, Ibuprofen etc. Some medicinal plants also the rich source of analgesics like as, Opooid analgesics Aloe vera barbedensis, Andrographis paniculata, Elettaria cardamomum, Punica granatum, Eugenia caryophyllus, Mimosa, Curcuma alismatifolia, Phoenix sylvestris, Stachys schscheglee, Menthol, Bunds longifolia, Burns sempervirens.

**Keywords:** Analgesic Herbs

## 1. Introduction

**Pain:** pain can be defined as "an unpleasant sensory and emotional experience associated with actual or potential tissue damage, or described in terms of such damage". Pain is a crucial aspect of the body's defense mechanism and it is a part of a rapid warning relay instruction the motor neurons of the central nervous system to minimize the physical harm.

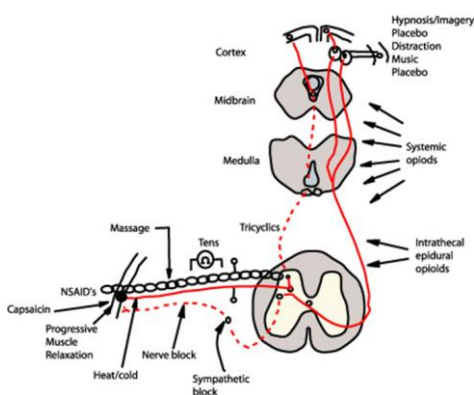


Fig. 1. Mechanism of pain

Pain is a vital function of the human body, involving nociceptors and the central nervous system (CNS) to transmit messages from noxious stimuli to the brain. The mechanism for neuropathic pain is distinct as it is caused by injury to the nervous system itself and can occur without the presence of noxious stimuli.

Pain can be classified into two types. They are: a) Acute pain b) Chronic pain

1. Acute pain: acute pain is the body's warning of present

damage to tissue or disease. It is often fast and sharp followed by aching pain. It is short term-pain or pain with easily identifiable causes. The pain due to inflammation and inflammation occurs due to damage of tissue or nervous, nervous damage due to surgery, cancer, infection, fracture, diabetes and chemotherapy.

2. **Chronic pain:** chronic pain is pain that last much longer than pain normally would with a particular injury. It can be constant or intermittent and is a generally harder to treat than acute pain. Pain can also be grouped by its source and related pain detecting neurons such as cutaneous pain, somatic pain, visceral pain and neuropathic pain.

- Analgesics are the agents which are used to relieve pain without loss of consciousness
- Herbal activity of pharmaceutical ingredients lowering the pain sensation includes volatile oils (monoterpenes and sesquiterpene), coumarin, alkaloid ingredients, organic acids, glycoside steroids, Limonenes, cineols, saponins, phenol ingredients such as thymol and carvacrol, flavonoids, Quercetin.
- Prostaglandins are formed from cyclooxygenase 2(COX-2) enzymes. Cyclooxygenase 2 enzymes are secreted from damaged cells and produce pain sensation associated through the receptor connected to G-proteins and increasing amount of CAMP in the cell.
- Herb containing flavonoids performed many effects by blocking the cyclo - oxygenase enzyme, tannins. The chemical constitute iridoid and flavonoids in extracts of herb are responsible for analgesic activity. Monoterpene ingredients linalool presents in cinnamon extract that act on pain receptors and produce an analgesic action.

Here, in this review article discussed about some natural analgesics like Aloe, Opium, Glycerriza glabra, Mutricaria pubiscene etc.

### A. Natural analgesic drugs

Many herbs having analgesics activity which is obtained from nature. They are as follows:

**Opioid Analgesics:** Opioids drugs are narcotics derived from Opium. Opium is obtained from the dried latex of the opium

poppy, (Biological source: *Papaver somniferum*). Opioids are drug which act on opioid receptors in the (CNS) central nervous system & opioids used as analgesic activity. Opioids used in chronic diseases like cancer to relieve sever pain.

## 2. Opium



Fig. 2. Opium

"Among the remedies which it has pleased Almighty God to give to man to relieve his sufferings, none is so universal and so efficacious as opium". Opium and its derivatives have been used as the most widely analgesics for severe pain since the early 1800s. Nowadays, application of several opioids is considered effective for the treatment of various forms of headaches, postoperative pain, neuropathic pain, and different chronic pain syndromes. Opium also plays a crucial role in our understanding of basic mechanism of pain.

### A. *Aloe vera Barbedensis*

Common name: Aloe

Family name: Asphodelaceae.



Fig. 3. Aloe

Anti-inflammatory effect compared to control. Aloe vera contains 75 potentially active constituents: vitamins, enzymes, minerals, sugars, lignin, saponins, salicylic acids and amino acids. Vitamins: It contains vitamins A (beta-carotene), C and E, which are antioxidants. It also contains vitamin B12, folic

acid, and choline. Aloe vera inhibits the cyclooxygenase pathway and reduces prostaglandin E2 production from arachidonic acid. Recently, the novel anti-inflammatory compound called C-glucosyl chromone was isolated from gel extracts.

## 3. *Glycyrrhiza glabra*:

Common name: Licorice, Liquorice, Sweetwood, Mulethi.

Family name: Legumea



Fig. 4. Liquorise

Liquorice root (rhizome) commercial extracts of glycyrrhizin in ammonium salt and *Glycyrriza Glabra* alcoholic extract which produced of four active ingredients: hydroglia aspirin C and dehydrogol aspirin D, glycaemia coumarin glycerin. Other ingredients of Liquorice are flavonoids, coumrins, amino acids, esteroles, Liquiritin, formononetin, starch, Saccharides, resin, oil essences, and saponins. This herb is anti-inflammatory activity.

### A. *Matricaria pubescens*

Common name: Mayweed

Family name: Asteraceae



Fig. 5. *Matricaria pubescens*.

Extraction process: whole plant collected sample air dried and grind to fine powder, powder is extracted with 100mL of methanol using soxhlet apparatus for 6 hours filtration of extract, dry it. Chemical constituents: essential oil isochrysanthemic acid, ethyl ester, spathulenol,  $\alpha$ -cadinol, geranyl isovalerate, *M. matricarioides* essential oil has been found to contain geranyl isovalerate as a major component of the essential oil, which is studied for its analgesic effect.

### B. *Eugenia caryophyllata* (clove)

Part of plant use: flower buds.

Common name: Clove

Family: Myrtaceae.



Fig. 6. Clove

Extraction of clove buds can be used aqueous and organic solvent like ethanol. Chemical constituents of clove: Eugenol, methyl salicylate, acetyeugenol, pinene, vanillin. Eugenol mainly shows the analgesic activity.

### C. *Mimosa pudica*

Common name: Sensitive plant, sleepy plant, action plant, Dormilones, touch-me-not, shameplant, zombie plant, or shy plant.

Family name: Fabacea



Fig. 7. *Mimosa pudica*

*Mimosa pudica* is a creeping annual or perennial herb. It has been identified as Lajjalu in Ayurveda and has been found to have anti asthmatic, aphrodisiac, analgesic an antidepressant. In the present study the active phytochemicals of *Mimosa Pudica* were revealed using photochemical analysis.

*Punica granatum* (Flower):

Common name: pome granate

Family name: Punicaceae – Pomegranate family.



Fig. 8. *Punica granatum*

The extract of flower of *Punica granatum* is used for analgesic activity

By Hot plate Method. The various extract of *Punica granatum* of flower shows significant analgesic activity at the dose of 50mg/kg. The maximum analgesic activity is shown

was at 60 min, after administration of drug, which was equivalent to standard drug morphine sulphate.

*Landolphia owariensis*:

Family: Lythraceae

Kingdom: Plantae

Species: *P. granatum*



Fig. 9. *Landolphia owariensis*

The aqueous, methanol and chloroform extracts of *Landolphia owariensis* leaves (AELO, MELO & CELO respectively) was investigated for anti-inflammatory and analgesic activities. All the extracts (100mg/kg each) were found to significantly ( $P < 0.05$ ) Inhibit paw edema induced by carrageenan in rats and the nociception induced by Tail immersion in hot water ( $50.0 \pm 1.00C$ ) and acetic acid. The methanol extract produced the highest paw edema inhibition while in thermally induced nociception both the MELO and CELO show high and comparable analgesic activity with acetylsalicylic acid (150mg/kg). However, in chemically induced pain (acetic acid) MELO produced the highest and comparable analgesic activity to acetylsalicylic acid (150mg/kg). We therefore conclude, that apart from the folklore uses of *L. Owariensis* leaves as antimalarial agents, the various extracts of the plant also possess anti-inflammatory and analgesic activities. Phytochemical analysis showed that the methanolic extract of *L. Owerensis* contain some secondary metabolites namely: alkaloids and some polyphenolic compounds. Also, this extract exhibits some antioxidative activities.

### D. *Vicoa indica*

Family: Asteraceae (Compositae)

Species: *Vicoa indica*

Common name: Golden Daisy



Fig. 10. *Vicoa indica*

In this study to evaluate the anti-inflammatory, analgesic property of the 4',5,6-trihydroxy-3',7-dimethoxyflavone from *Vicoa indica* DC using different agents and models. Antiinflammatory effects were produced by different inflammatory agents and after 4 hours the hind paw of the animals were sacrificed and weighed in a torsion balance. Analgesic effects were assessed by using different models and by acetic acid. In the former the analgesic effect was noted for a stipulated period of time and in the latter the writhings was counted for 15 minutes. The drug 4',5, 6-trihydroxy-3',7-dimethoxyflavone at 50 mg/kg body weight was very effective in producing inhibition in both antiinflammatory-analgesic models.

#### *E. Rumex crispus*

Family: Polygonaceae.

Common Names: curled dock, curly dock, curlyleaf dock, narrow dock, narrowleaf dock, sour dock.



Fig. 11. *Rumex crispus*

The analgesic effects of ethanolic extract of aerial parts of *Rumex crispus* and acetylsalicylic acid (as standard drug). The plant extract showed highly significant analgesic activity at all the three doses tested 300, 500 and 1000 mg/kg. The extract showed a rapid onset of analgesic effect as compared to that of standard drug but the analgesic activity remained less potent when compared with standard drug throughout the whole study.

#### 4. Conclusion

Plants have been medicine and food for animals, since animal life emerged. Plants contain a large number of spread of pharmacologically active ingredients and each herb has its own

unique combination and properties. A number of plants have been described in Ayurveda and other traditional medicinal system for the management of different diseases according to the perceived needs of the patient and based upon the individual herb's constituents. Review of herbal medicine used by different medicinal system and tribal/ethnic people in pain and inflammation is essentially quite important in the face of treatment. A large number of people these days are looking for herbal remedies and relief for their ailments. The cause for this is the quest for a natural and safe way to treat disease.

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