

Eschscholzia californica

California Poppy

Indications

For managing pain, anxiety, and insomnia. Provides relaxation, mild sedation, or both while treating a variety of disease states. Nonaddictive, safe, gentle, nonnarcotic pain relief.

Mechanism of Action

Some books have reported *Eschscholzia* to contain trace amounts of morphine, but there are no published studies attesting to the veracity. Most likely, the medicinal actions of *Eschscholzia* are due to a large collection of isoquinoline alkaloids possessing a variety of agonists/antagonists, and metabolic enzyme actions on central neurotransmitter receptors, as other more studied poppy family' alkaloids have been demonstrated to do (e.g., opium poppy, *Corydalis*).

Many isoquinoline alkaloids found in *Eschscholzia*¹ have medicinal properties including the antimicrobial/neurotransmitter agents berberine and sanguinarine.² Sanguinarine has been shown to inhibit lipoxygenase, which may contribute anodyne and anti-inflammatory mechanisms,³ and to inhibit glycine transport and thus promote analgesia.⁴

Eschscholzia also contains pavinane groups of alkaloids including pavinane, protopine, benzyloquinoline/benzophenanthridine, and aporphine and protoberberine groups.^{5,6}

Benzyloquinoline alkaloids in *Eschscholzia* include papaverine, noscapine, apomorphine, reticuline, and tubocurarine, with the majority shown to have neurotransmitter and psychotropic effects, including anodyne properties.⁷ For example, various forms of reticuline have been shown to inhibit acetylcholinesterase in human blood,⁸ whereas other forms bind serotonin 5-HT(1A) and 5-HT(7) receptors⁹ at 100 µg/mL, which may contribute to anti-inflammatory and pain-relieving effects.

Eschscholzia also inhibits the degradation of catecholamines and the synthesis of adrenaline, attributed to monoamine oxidase, phenolase, diamine oxidase, and dopamine β-hydroxylase enzyme inhibition, enzymes involved in neurotransmitter degradation.¹⁰ Via these mechanisms, *Eschscholzia* seems capable of maintaining high catecholamine levels while inhibiting adrenaline. Mouse studies have also suggested California poppy to be active at benzodiazepine (GABA) receptors.¹¹

Evidence-Based Research

There are several species of *Eschscholzia*, and like all poppies, they contain morphine-like alkaloids credited with nerve-calming and pain-relieving actions.

Eschscholzia californica has demonstrated anxiolytic effects in mice, where doses of more than 25 mg/kg demonstrated anxiolytic effects and 200 mg/kg promoted sedation.¹²

One double-blind, randomized, placebo-controlled trial found that in a group of 264 patients presenting with generalized anxiety of mild-to-moderate intensity, a preparation containing fixed quantities of *Crataegus oxyacantha*, *E. californica*, and magnesium proved safe and more effective than placebo in treating mild-to-moderate anxiety disorders over a 3-month period.¹³

Safety in Pregnancy and Breastfeeding

There are no published studies on *E. californica* in pregnancy or lactation; however, plants containing opiates, no matter how small the quantity, are probably best avoided by pregnant and nursing women. Use with caution in patients on psychiatric drugs.

General Safety

Aqueous extracts of *E. californica* have not been shown to induce any toxic effect when administered orally or parenterally to mice.¹⁴

Very large dosages could possibly promote light sedation and drowsiness for which the general recommendation to avoid operating heavy machinery would apply.

Any pavarine alkaloid-containing plants may cause drug tests to be positive for opiates.

Herbalists do not recommend simply masking the pain of underlying conditions with *E. californica*, or any anodyne, long term without also addressing the cause.

Dosage

Dried powder of the seed pods, aerial parts, or whole plant is used and is generally considered safe at doses of 500 mg–2 g/day. Smaller amounts if combined in a formula with herbs of a similar activity (e.g., other sedatives).

Traditional Uses

California poppy is the state flower of California and can be found growing on sunny slopes in meadows of the west coast of North America. The plant is a relative of the better-known opium poppy, and the roots and aerial parts were used by Native Americans for pain and to improve sleep. The roots were chewed for oral and dental pain; the pulverized root pulp used topically on wounds and traumatic injuries; and the leaves, buds, and seeds were prepared as teas to consume orally for pain and insomnia. The plant was considered safe for children and sometimes used for bedwetting and anxiety, and as a muscle relaxant for internal organ pain.

In early American Folk medicine, *E. californica* was also used for mood disorders including anxiety, depression, and exhaustive states, or in formulas to provide relaxation while treating other disease states. Classic Early American authors/physicians, including HW Felter, contended that unlike morphine and opium poppy derivatives, the use of the whole California poppy plant was nonaddictive, safe, and gentle and offered nonnarcotic pain relief.

In the modern era, *E. californica* has become established as a “nervine” (nerve tonic) and is commonly included in “Kick Juice” formulas, a common name for herbal formulas used to help opiate addicts withdraw or reduce the dose of opioid pharmaceuticals or heroin.

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