

Available online at [www.pharmaresearchlibrary.com](http://www.pharmaresearchlibrary.com)

Pharma Research Library  
**International Journal of Pharmacy and Natural Medicines**  
2013, Vol.1 (1): 40-43



Review Article



Pharma Research  
Library

**Passionflower (*Passiflora incarnata*): Herbal Remedies**

V.T. Chamle<sup>\*1</sup>, P. Solapure<sup>2</sup>, Dr. R.A. Hajare<sup>3</sup>

<sup>1,3</sup>Shri BSPM'S B. Pharmacy College, Ambajogai, Dist. Beed, Maharashtra  
Dr. Babasaheb Ambedkar Marathwada University., Aurangabad, Maharashtra, India

<sup>2</sup>M.M.College of Pharmacy Kalewadi, Pune, India

\*E-mail: rahulhajare@rediffmail.com

**Abstract**

Passionflower (*Passiflora incarnata*) was used traditionally in the Americas and later in Europe as a calming herb for anxiety, insomnia, seizures, and hysteria. Passionflower is a hardy woody vine that grows up to 10 m long and puts off tendrils, enabling it to climb up and over other plants in the rainforest canopy. It bears striking, large white flowers with pink or purple centers. The flowers gave it the name passionflower (or flower of passion) because Spanish missionaries thought they represented some of the objects associated with the crucifixion of Christ. The vine produces a delicious fruit which is about the size of a large lemon, wrinkling slightly when ripe. Passionflower, called maracuja in the Amazon, is indigenous to many tropical and semi-tropical areas - from South America to North America. There are over 200 species of passionflower vines; the most prevalent species in the Amazon are *Passiflora edulis* and *P. incarnata*.

**Key words:** Passionflower, *Passiflora incarnata*, Maracuja, *Passiflora edulis*

**Introduction**

It is still used today to treat anxiety and insomnia. Scientists believe passionflower works by increasing levels of a chemical called gamma aminobutyric acid (GABA) in the brain<sup>1</sup>. GABA lowers the activity of some brain cells, making you feel more relaxed. The effects of passionflower tend to be milder than valerian (*Valeriana officinalis*) or kava (*Piper methysticum*), 2 other herbs used to treat anxiety. Passionflower is often combined with valerian, lemon balm (*Melissa officinalis*), or other calming herbs<sup>2</sup>. Few scientific studies have tested passionflower as a treatment for anxiety or insomnia, however, and since passionflower is often combined with other calming herbs, it is difficult to tell what effects passionflower has on its own.

One study of 36 people with generalized anxiety disorder found that passionflower was as effective as the drug oxazepam (Serax) for treating symptoms<sup>3</sup>. However, the study lacked a placebo group, so it is not considered to be definitive. In another study of 91 people with anxiety symptoms, researchers found that an herbal European product containing passionflower and other herbal sedatives significantly reduced symptoms compared to placebo. A more recent study found that patients who were given passionflower before surgery had less anxiety, but recovered from anesthesia just as quickly, than those given placebo.

#### Plant Description<sup>4</sup>:

Native to southeastern parts of the Americas, passionflower is now grown throughout Europe. It is a perennial climbing vine with herbaceous shoots and a sturdy woody stem that grows to a length of nearly 10 meters (about 32 feet). Each flower has 5 white petals and 5 sepals that vary in color from magenta to blue. According to folklore, passionflower got its name because its corona resembles the crown of thorns worn by Jesus during the crucifixion. The passionflower's ripe fruit is an egg-shaped berry that may be yellow or purple. Some kinds of passion fruit are edible.



Fig.1



Fig. 2

#### Parts Used:

The above ground parts (flowers, leaves, and stems) of the passionflower are used for medicinal purposes.

#### Precautions:

The use of herbs is a time honored approach to strengthening the body and treating disease. Herbs, however, can trigger side effects and can interact with other herbs, supplements, or medications. For these reasons, you should take herbs with care, under the supervision of a health care provider. Do not take passionflower if you are pregnant or breastfeeding. For others, passionflower is generally considered to be safe and nontoxic in recommended doses.

#### Possible Interactions:

Passionflower may interact with the following medications:

**Sedatives (drugs that cause sleepiness)** -- Because of its calming effect, passionflower may make the effects of sedative medications stronger. These medications include: Anticonvulsants such as phenytoin (Dilantin), Barbiturates, Benzodiazepines such as alprazolam (Xanax) and diazepam (Valium), Drugs for insomnia, such as zolpidem (Ambien), zaleplon (Sonata), eszopiclone (Lunesta), ramelteon (Rozerem), Tricyclic antidepressants, such as amitriptyline (Elavil), amoxapine, doxepin (Sinequan), and nortriptyline (Pamelor)

**Antiplatelets and anticoagulants (blood thinners)**-Passionflower may increase the amount of time blood needs to clot, so it could make the effects of blood thinning medications stronger and increase your risk of bleeding. Blood thinning drugs include: Clopidogrel (Plavix), Warfarin (Coumadin), Aspirin

#### Monoamine oxidase inhibitors (MAO inhibitors or MAOIs):

MAO inhibitors are an older class of antidepressants that are not often prescribed now. Theoretically, passionflower might increase the effects of MAO inhibitors, as well as their side effects, which can be dangerous. These drugs include: Isocarboxazid (Marplan), Phenelzine (Nardil), and Tranylcypromine (Parnate)

#### Tribal and herbal medicine uses:

Passion fruit is enjoyed by all rainforest inhabitants -humans and animals alike. Several species of *Passiflora* have been domesticated for the production of their edible fruit. The yellow, gelatinous pulp inside the fruit is eaten out of hand, as well as mixed with water and sugar to make drinks, sherbet, jams and jellies, and even salad dressings.

Indigenous tribes throughout the Amazon have long used passionflower leaves for its sedative and pain-relieving properties; the fruit is used as a heart tonic and to calm coughs. Passionflower was first "discovered" in Peru by a Spanish doctor named Monardes in 1569 who documented the indigenous uses and took it back to the Old World where it quickly became a favorite calming and sedative herb tea. Spanish conquerors of Mexico and South America also learned its use from the Aztec Indians and it eventually became widely cultivated in Europe. Since its introduction into European herbal medicine systems, passionflower has been widely used as a sedative, antispasmodic and nerve tonic. The leaf infusion was introduced in North American medicine in the mid 1800's as a sedative through native and slave use in the South. It was also used for headaches, bruises and general pain; applying the bruised leaves topically to the affected area. In many countries in Europe, the U.S. and Canada, the use of passionflower leaves to tranquilize and settle edgy nerves has been documented for over 200 years. It was also employed for colic, diarrhea, dysentery, menstrual difficulties, insomnia, neuralgia, eye disorders, epilepsy and convulsions, and muscle spasms and pain.

#### **Plant chemicals:**

Chemical analysis on passionflower indicates it contains three main groups of active chemicals: alkaloids, glycosides and flavonoids. Interestingly, when the glycosides and flavonoids are isolated and tested individually they have demonstrated the opposite effects for which the plant is commonly used for. Only when the two groups of chemicals are combined as a whole herb, do researchers observe the plant's sedative effect. Passionflower also contains naturally occurring serotonin as well as a chemical called *maltol* which has documented sedative effects (and which might explain the natural calming properties of passionflower). A group of harmine alkaloids in passionflower have demonstrated antispasmodic activity and the ability to lower blood pressure. In addition, a flavonoid named *chrysin* has demonstrated significant antianxiety activity.

The main plant chemicals in passionflower include: alkaloids, alpha-alanine, apigenin, aribine, chrysin, citric acid, coumarin, cyclopassifloic acids A-D, cyclopassiflosides I-VI, diethyl malonate, edulan-I, edulan-II, flavonoids, glutamine, gynocardin, harmine, harmaline, harmalol, harmine, harmol, homoorientin, isoorientin, isoschaftoside, isovitexin, kaempferol, loturine, lucenin-2, luteolin, n-nonacosane, orientin, passicol, passiflorine, passifloric acid, pectin, phenolic acids, phenylalanine, proline, prunasin, quercetin, raffinose, sambunigrin, saponarin, saponaretin, saponarine, schaftoside, scopoletin, serotonin, sitosterol, and stigmaterol.

#### **Biological activities and clinical research**

Passionflower (as well as its harmine alkaloids) have been the subject of much scientific research. After almost 100 years of study the sedative, antispasmodic and analgesic effects of this tropical vine have been firmly established in science. The analgesic effects of passionflower were first clinically documented in 1897 while the sedative effects were first recorded in 1904. Antispasmodic, anti-anxiety and hypotensive actions of passionflower leaves were clinically validated in the early 1980's. An extract of the fruit demonstrated anti-inflammatory and tranquilizing effects in animal studies. Also, a leaf extract has also shown to have diuretic activity in rats. Passionflower has traditionally been used as an aphrodisiac and recent clinical studies with mice have verified this use as well. In a 2003 study, a leaf extract was reported to improve overall sexual function, increase sperm count, fertilization potential and litter size. Its traditional use for coughs has also been recently confirmed. In a 2002 study with mice a passionflower leaf extract was shown to be comparable to the cough suppressant action of codeine.

### **Conclusion**

Passionflower is widely employed by herbalists and natural health practitioners around the world today for its sedative, nervine, anti-spasmodic and analgesic effects. In the United States, *P. incarnata* is the species most used to treat insomnia, muscle cramps, hysteria, neuralgia, menstrual cramps and PMS, and as a pain reliever in various conditions. In Europe, it is employed for nervous disorders, insomnia, spasms, neuralgia, alcoholism, hyperactivity in children, rapid heart beat, headaches, and as a pain reliever and antispasmodic. In South America, *P. edulis* is the species most used as a sedative, diuretic, antispasmodic, for convulsions, alcoholism, headaches, insomnia, colic in infants, diarrhea, hysteria, neuralgia, menopausal symptoms and hypertension. In South America the fruit juice is also used as a natural remedy to calm hyperactive children, as well as for asthma, whopping cough, bronchitis and other tough coughs. In Peruvian traditional medicine today, passionfruit juice is used for urinary infections and as a mild diuretic. Passionflower leaves are classified as "Generally Regarded as Safe" by the FDA. They are the subject of various European monographs for medicinal plants and are generally regarded as safe even for children and infants.

### References

1. Mowrey, Daniel. The Scientific Validation of Herbal Medicine. Keats Publishing, Inc New Canaan CT. 1986.
2. Lutomski, J. "Alkaloidy *Passiflora incarnata* L." Dissertation, Institut for Medicinal Plant Research, Pozan, 1960
3. Bruneton, J. Pharmacognosy, Phytochemistry, Medicinal Plants. Intercept, Ltd., Hampshire, England. 1995.
4. Flynn, R., and Roest, M. Your guide to standardized herbal products. One World Press. 1995.
5. Wolfman, C., et al. "Possible anxiolytic effects of chrysin, a central benzodiazepine receptor ligand isolated from *Passiflora coerulea*." Pharmacol. Biochem. Behav. 1994;47(1):1-4.
6. Zanolli, P., et al. "Behavioral characterisation of the flavonoids apigenin and chrysin." Fitoterapia. 2000; 71 Suppl 1: S117-23.
7. Mowrey, Daniel. The Scientific Validation of Herbal Medicine. Keats Publishing, Inc New Canaan CT. 1986.
8. Lutomski, J. "Alkaloidy *Passiflora incarnata* L." Dissertation, Institut for Medicinal Plant Research, Pozan, 1960.
9. Lueng. A., Foster, S. Encyclopedia of Common Natural Ingredients. Wiley & Sons, NY, NY. 1996.
10. Yasukawa, K., et al. "Inhibitory effect of edible plant extracts on 12-o-tetradecanoylphorbol-13-acetate-induced ear oedema in mice." Phytother. Res. 1993;7(2):185-189.
11. Lutomski, J., et al. "Pharmacochemical investigation of the raw materials from *Passiflora* genus. 2. The pharmacochemical estimation of juices from the fruits of *Passiflora edulis* and *Passiflora edulis* forma *flavicarpa*." Planta Med. 1975;27: 112-121.
12. De a Ribeiro, R., et al. "Acute diuretic effects in conscious rats produced by some medicinal plants used in the state of Sao Paulo, Brasil." J. Ethnopharmacol. 1988;24(1):19-29.
13. Dhawan, K., et al. "Aphrodisiac activity of methanol extract of leaves of *Passiflora incarnata* Linn. in mice." Phytother. Res. 2003; 17(4): 401-3.
14. Dhawan, K., et al. "Antitussive activity of the methanol extract of *Passiflora incarnata* leaves." Fitoterapia. 2002; 73(5): 397-9.
15. HerbClip: Passionflower., "An Herbalist's View of Passionflower" American Botanical Council, Austin, Texas April 10, 1996.