

## Peaceful Nights™ Product Science – Passionflower Monograph

---

{Note: the underlined sections within the text of the abstracts is highlighted for emphasis by us, not the authors}

### AMERICAN BOTANICAL COUNCIL - Herbal Medicine Review

#### Passionflower herb

**Latin Name:** *Passiflora incarnata* **Pharmacopeial Name:** Passiflorae herba **Other Names:** Maypop passion flower, Passiflora, passion vine

#### Overview

Passionflower is a perennial creeping vine, native to the tropical and semi-tropical southern United States (ranging from Virginia to Florida and as far west as Missouri and Texas), Mexico, and Central and South America, now cultivated in tropical and subtropical regions, including Florida, Guatemala, and India. The material of commerce is obtained from wild and cultivated plants, mainly from the United States, India, and the West Indies (Bergner, 1995; Bruneton, 1995; Leung and Foster, 1996; Der Marderosian, 1999; Wichtl and Bisset, 1994).

Passionflower was first cultivated by native Americans for its edible fruit (Hedrick, 1972; Uphof, 1968). Spanish conquerors first learned of passionflower from the Aztecs of Mexico who used it as a sedative to treat insomnia and nervousness. The plant was taken back to Europe where it became widely cultivated and introduced into European medicine. The unusual construction of its whitish violet flowers caused Spanish missionaries to name this plant with reference to elements of the *passion* of Christ: Its coronal threads were seen as a symbol for the crown of thorns, the curling tendrils for the cords of the whips, the five stamens for the wounds, the three stigmas for the nails on the cross, the ovary for the hammer, and the five petals and five sepals of the flower for the ten "true" apostles (Brill and Dean, 1994; Der Marderosian, 1999; Tyler, 1987; Wichtl and Bisset, 1994).

Its traditional uses, in American aboriginal medicine, by the Cherokees of the southern Allegheny mountains, the Houmas of Louisiana, and the Aztecs of Mexico, are well documented and predate its entry into conventional American and European medicine. It was introduced into conventional North American medicine in the mid-1800s, from Europe, or through Native or slave use in the South, and possibly through all of these avenues (Bergner, 1995; Bown, 1995; Ellingwood, 1983; Hamel and Chiltoskey, 1975; Perry, 1975; Speck, 1941). Today, passionflower is official in the national pharmacopeias of Egypt, France, Germany,

and Switzerland, and also monographed in the *British Herbal Pharmacopoeia* and the *British Herbal Compendium*, the ESCOP monographs, the Commission E, the German Standard Licenses, the *German Homeopathic Pharmacopoeia*, and the *Homeopathic Pharmacopoeia of the United States* (BAZ, 1998; BHP, 1996; Bradley, 1992; Braun et al., 1997; Bruneton, 1995; DAB, 1997; ESCOP, 1997; DHAB 1, 1978; HPUS, 1992; Newall et al., 1996; Ph.Fr.X, 1990; Ph.Helv.VII, 1987; Wichtl and Bisset, 1994).

In Germany, passionflower is used as a component of prepared sedative (in combination with lemon balm and valerian root) and cardiotoxic (in combination with hawthorn) nonprescription drugs in various dosage forms including coated tablets, tinctures, and infusions (BAZ, 1998; Bradley, 1992; Braun et al., 1997; Leung and Foster, 1996; Wichtl and Bisset, 1994). It is also used in German homeopathic medicine to treat pain, insomnia related to neurasthenia, and nervous exhaustion (DHAB 1, 1978; Der Marderosian, 1999). In German pediatric medicine, it is used as a component of *Species nervinae pro infantibus* (sedative tea for children), which contains 30% lemon balm leaf, 30% lavender flower, 30% passionflower herb, and 10% St. John's wort herb. It is also a component of a standard Commission E fixed formula "Sedative Tea," which contains 40% valerian root, 30% passionflower herb, and 30% lemon balm leaf (BAZ, 1998; Schilcher, 1997). In the United States, passionflower is used as a sedative component of dietary supplement sleep aid formulations. It was official in the fourth (1916) and fifth (1926) *United States National Formulary* and removed in 1936. It was also an approved OTC sedative and sleep aid up until 1978 (Bown, 1995; Leung and Foster, 1996; NF, 1926).

Very few pharmacological studies have been undertaken, though its central nervous system sedative properties have been documented, supporting its traditional indications for use (Newall et al., 1996). The approved modern therapeutic applications for passionflower are supportable based on its history of use in well established systems of traditional and conventional medicine, pharmacodynamic studies supporting its empirically acknowledged sedative and anxiolytic effects, and phytochemical investigations.

German pharmacopoeial grade passionflower must be composed of the whole or cut dried aerial parts, collected during the flowering and fruiting period, containing not less than 0.4% flavonoids calculated as hyperoside. Botanical identity must be confirmed by thin-layer chromatography (TLC) as well as by macroscopic and microscopic examinations and organoleptic evaluation. Purity tests are required for the absence of pith-containing stem fragments greater than 3 mm in diameter and also for the absence of other species (e.g., *P. coerulea* L.) (DAB 1997; Wichtl and Bisset, 1994). The *British Herbal Pharmacopoeia* requires not less than 15% water-soluble extractive, among other quantitative standards (BHP, 1996). The *French Pharmacopoeia* requires not less than 0.8% total flavonoids calculated as

vitexin by measuring the absorbance after reaction (Bradley, 1992; Bruneton, 1995; ESCOP, 1997; Ph.Fr.X, 1990). The ESCOP monograph requires that the material comply with the French, German, or Swiss pharmacopeias (ESCOP, 1997).

## Description

Passionflower herb consists of fresh or dried, aboveground parts of *Passiflora incarnata* L. [Fam. Passifloraceae] and their preparations in effective dosage. The preparation contains flavonoids (vitexin), maltol, coumarin derivatives, and small amounts of essential oil. The content of harman alkaloids varies; it must not exceed 0.01%.

## Chemistry and Pharmacology

Passionflower contains 0.82.5% apigenin and luteolin glycosides, vitexin, isovitexin and their C-glycosides, kaempferol, quercetin, and rutin; indole alkaloids (0.010.09%), mainly harman, harmaline, harmine; coumarin derivatives; cyanogenic glycosides (gynocardin); fatty acids (linoleic and linolenic); gum; maltol; phytosterols (stigmasterol); sugars (sucrose); and a trace of volatile oil (Bradley, 1992; Bruneton, 1995; ESCOP, 1997; Leung and Foster, 1996; Newall et al., 1996; Wichtl and Bisset, 1994).

The Commission E reported that a motility-inhibiting effect has been observed in animal experiments.

The *British Herbal Compendium* reported its actions as sedative, anxiolytic, and antispasmodic (Bradley, 1992). The available pharmacodynamic studies generally support the empirically accepted central nervous system sedative and anxiolytic effects (ESCOP, 1997; Newall et al., 1996). The specific constituents responsible for these actions remain unclear and it is possibly a synergy of multiple constituents instead (Bradley, 1992; Bruneton, 1995; ESCOP, 1997; Newall et al., 1996).

## Uses

The Commission E approved the internal use of passionflower for nervous restlessness.

The *British Herbal Compendium* indicates its use for sleep disorders, restlessness, nervous stress, and anxiety. Other uses include neuralgia and nervous tachycardia (Bradley, 1992). The German Standard License for passionflower tea indicates its use for nervous restlessness, mild disorders of sleeplessness, and gastrointestinal

disorders of nervous origin (Bradley, 1992; Wichtl and Bisset, 1994). It is frequently used in combination with valerian and other sedative plants (Bruneton, 1995). ESCOP indicates its use for tenseness, restlessness, and irritability with difficulty in falling asleep (ESCOP, 1997).

### **Contraindications**

None known.

### **Side Effects**

None known.

### **Use During Pregnancy and Lactation**

No restrictions known.

### **Interactions with Other Drugs**

None known.

### **Dosage and Administration**

Unless otherwise prescribed: 4-8 g per day of cut herb.

Dried herb: 2 g, three to four times daily.

Infusion: 2 g in 150 ml water, three to four times daily.

Fluidextract 1:1 (g/ml): 2 ml, three to four times daily.

Tincture 1:5 (g/ml): 10 ml, three to four times daily.

Native dry extract 5:0-6:0:1 (w/w): 0.3-0.4 g, three to four times daily.

### **References**

BAnz. See *Bundesanzeiger*.

Bergner, P. 1995. Passionflower. *Medical Herbalism* 7(12):1314, 26.

Bown, D. 1995. *Encyclopedia of Herbs and Their Uses*. New York: DK Publishing, Inc. 323.

Bradley, P.R. (ed.). 1992. *British Herbal Compendium*, Vol. 1. Bournemouth: British Herbal Medicine Association.

Braun, R. et al. 1997. *Standardzulassungen für Fertigarzneimittel/Text and Kommentar*. Stuttgart: Deutscher Apotheker Verlag.

Brill, S. and E. Dean. 1994. *Identifying and Harvesting Edible and Medicinal Plants in Wild (and Not So Wild) Places*. New York: Hearst Books. 105106.

*British Herbal Pharmacopoeia* (BHP). 1996. Exeter, U.K.: British Herbal Medicine Association.

Bruneton, J. 1995. *Pharmacognosy, Phytochemistry, Medicinal Plants*. Paris: Lavoisier Publishing.

*Bundesanzeiger* (BAnz). 1998. Monographien der Kommission E (Zulassungs- und Aufbereitungskommission am BGA für den humanmed. Bereich, phytotherapeutische Therapierichtung und Stoffgruppe). Kln: Bundesgesundheitsamt (BGA).

Der Marderosian, A. (ed.). 1999. *The Review of Natural Products*. St. Louis: Facts and Comparisons.

*Deutsches Arzneibuch* (DAB 1997). 1997. Stuttgart: Deutscher Apotheker Verlag.

*Deutsches Homopathisches Arzneibuch*, 1<sup>st</sup> ed. (DHAB 1). 1978. Stuttgart: Deutscher Apotheker Verlag.

Ellingwood, F. 1983. *American Materia Medica, Therapeutics and Pharmacognosy*. Portland, OR: Eclectic Medical Publications [reprint of 1919 original].

ESCOP. 1997. "Passiflorae herba." *Monographs on the Medicinal Uses of Plant Drugs*. Exeter, U.K.: European Scientific Cooperative on Phytotherapy.

Hamel, P.B. and M.U. Chiltoskey. 1975. *Cherokee Plants and Their Uses A 400 Year History*. Sylva, NC: Herald Publishing Company.

Hedrick, U.P. (ed.). 1972. *Sturtevant's Edible Plants of the World*. New York: Dover Publications.

*The Homeopathic Pharmacopoeia of the United States (HPUS)*. 1992. Arlington, VA: Pharmacopoeia Convention of the American Institute of Homeopathy.

Leung, A.Y. and S. Foster. 1996. *Encyclopedia of Common Natural Ingredients Used in Food, Drugs, and Cosmetics*, 2<sup>nd</sup> ed. New York: John Wiley & Sons, Inc.

*National Formulary (NF)*, 5<sup>th</sup> ed. 1926. Washington, D.C.: American Pharmaceutical Association.

Newall, C.A., L.A. Anderson, J.D. Phillipson. 1996. *Herbal Medicines: A Guide for Health-Care Professionals*. London: The Pharmaceutical Press.

Perry, M.J. 1975. *Food Use of "Wild" Plants by Cherokee Indians*. The University of Tennessee, M.S. Thesis.

*Pharmacope Francaise Xe dition* (Ph.Fr.X.). 1983/1990. Moulins-les-Metz: Maisonneuve S.A.

*Pharmacopoeia Helvetica*, 7<sup>th</sup> ed. Vol. 14.(Ph.Helv.VII). 1987. Bern: Office Central Fdral des Imprints et du Matriel.

Schilcher, H. 1997. *Phytotherapy in Paediatrics: Handbook for Physicians and Pharmacists*. Stuttgart: Medpharm Scientific Publishers. 60, 62, 128, 159.

Speck, F.G. 1941. A List of Plant Curatives Obtained from the Houma Indians of Louisiana. *Primitive Man* 14:4975.

Tyler, V.E. 1987. *The New Honest Herbal*. Philadelphia: G.F. Stickley Co.

Uphof, J.C. 1968. *Dictionary of Economic Plants*. W rzburg: Verlag von J. Cramer.

Wichtl, M. and N.G. Bisset (eds.). 1994. *Herbal Drugs and Phytopharmaceuticals*. Stuttgart: Medpharm Scientific Publishers.

### **Additional Resources**

*British Herbal Pharmacopoeia (BHP)*. 1990. Bournemouth, U.K.: British Herbal Medicine Association.

.1983. Keighley, U.K.: British Herbal Medicine Association.

Brasseur, T. and L. Angenot. 1984. [The pharmacognosy of the passion flower] [In French]. *J Pharm Belg* 39(1):1522.

Council of Europe. 1981. *Flavouring Substances and Natural Sources of Flavourings*, 3<sup>rd</sup> ed. Strasbourg: Maisonneuve.

Direction de la Pharmacie et du Mdicament (DPM). 1992. Bulletin Officiel No. 92/11 bis. [English edition]. Paris: Direction des Journaux Officiels.

Duke, J.A. 1985. *Handbook of Medicinal Herbs*. Boca Raton: CRC Press.

Goldberg, A., P. Altaffer, M. Altaffer (eds.). 1997. *Brazilian Botanical Monographs*, 1<sup>st</sup> ed. Oakland: New World Enterprises, Inc.

Hnsel, R., K. Keller, H. Rimpler, G. Schneider (eds.). 1994. *Hagers Handbuch der Pharmazeutischen Praxis*, 5<sup>th</sup> ed. Vol. 6. Berlin-Heidelberg: Springer Verlag. 3449.

Jaspersen-Schib, R. 1990. Sdatifs base de plantes. *Schweiz Apoth Ztg* 128:248251.

List, P.H. and L. Hrhammer (eds.). 1973/1979. *Hagers Handbuch der Pharmazeutischen Praxis*, Vols. 17. New York: Springer Verlag.

Lutowski, J., B. Malek, L. Rybacka. 1975. [Pharmacochemical investigations of the raw materials from *Passiflora* genus. 2. The pharmacochemical estimation of juices from the fruits of *Passiflora edulis* and *Passiflora edulis* forma flavicarpa] [In German]. *Planta Med* 27(2):112121.

Lutowski, J. and B. Malek. 1975. [Pharmacological investigations on raw materials of the genus *Passiflora*. 4. The comparison of contents of alkaloids in some harman raw materials] [In German]. *Planta Med* 27(4):381386.

Lutowski, J., E. Segiet, K. Szpunar, K. Grisse. 1981. Die Bedeutung der Passionsblume in der Heilkunde [The importance of the passionflower in medicine]. *Pharm Unserer Zeit* 10(2):4549.

Meier, B. 1995. *Passiflora* herbpharmazeutische Qualitt. *Z Phytother* 16:9099.

. 1995. *Passiflora incarnata* L. Passionsblume. *Z Phytother* 16:115126.

Reynolds, J.E.F. (ed.). 1993. *Martindale: The Extra Pharmacopoeia*, 30<sup>th</sup> ed. London: The Pharmaceutical Press.

Sopranzi, N., G. De Feo, G. Mazzanti, L. Tolu. 1990. Parametri biologici ed elettroencefalografici nel ratto correlati a *Passiflora incarnata* L. [Biological and electroencephalographic parameters in rats in relation to *Passiflora incarnata* L.] *Clin Ter* 132(5):329333.

Soulimani, R. et al. 1997. Behavioural effects of *Passiflora incarnata* L. and its

indole alkaloid and flavonoid derivatives and maltol in the mouse. *J Ethnopharmacol* 57(1):1120.

Speroni, E. and A. Minghetti. 1988. Neuropharmacological activity of extracts from *Passiflora incarnata*. *Planta Med* 54(6):488-491.

This material was adapted from *The Complete German Commission E Monographs Therapeutic Guide to Herbal Medicines*. M. Blumenthal, W.R. Busse, A. Goldberg, J. Gruenwald, T. Hall, C.W. Riggins, R.S. Rister (eds.) S. Klein and R.S. Rister (trans.). 1998. Austin: American Botanical Council; Boston: Integrative Medicine Communications.

1) The Overview section is new information.

2) Description, Chemistry and Pharmacology, Uses, Contraindications, Side Effects, Interactions with Other Drugs, and Dosage sections have been drawn from the original work. Additional information has been added in some or all of these sections, as noted with references.

- 3) The dosage for equivalent preparations (tea infusion, fluidextract, and tincture) have been provided based on the following example: Unless otherwise prescribed: 2 g per day of [powdered, crushed, cut or whole] [plant part]
  - Infusion: 2 g in 150 ml of water
  - Fluidextract 1:1 (g/ml): 2 ml
  - Tincture 1:5 (g/ml): 10 ml

4) The References and Additional Resources sections are new sections. Additional Resources are not cited in the monograph but are included for research purposes.

**Excerpt from Herbal Medicine: Expanded Commission E Monographs Copyright 2000 American Botanical Council - Published by Integrative Medicine Communications - Available from the American Botanical Council.**

*\*CAUTION-DISCLAIMER: This information is for informational and educational purposes only. It has not been reviewed or approved by the Food & Drug Administration. It does not constitute competent, qualified professional advice for the diagnosis, treatment, cure, or prevention of any human disease or disorder. Consult your family healthcare professional before taking any products or other actions, based on this information, especially if you are currently taking prescription medication or you have been or are currently being treated for a serious illness, disease, or medical condition.*