

**PASSION FLOWER
FOR HOMOEOPATHIC PREPARATIONS**

**PASSIFLORA INCARNATA
FOR HOMOEOPATHIC PREPARATIONS**

Passiflora incarnata ad praeparationes homoeopathicas

Other Latin name used in homoeopathy: **Passiflora**

DEFINITION

Fresh, aerial part of *Passiflora incarnata* L.

CHARACTERS

The passion flower may contain flowers and fruit.

Macroscopic and microscopic characters described under identification tests A and B.

IDENTIFICATION

- A. Green to greenish-grey or brownish stem, ligneous, hollow, longitudinally striated, glabrous or very slightly pubescent with a diameter usually less than 8 mm; green, alternate leaves finely dentate and pubescent, deeply divided into 3 acute lobes, the middle one being the main one; prominent midrib on the underside, villous petiole bearing 2 dark nectariferous glands near the lamina; very numerous tendrils coming out at the axil of the leaves, smooth, round, ending in a corkscrew shape. If present, the flowers are regular with 3 small green sepals and corolla with 5 elongated, white petals with several rows of filiform petaloid appendices, purple or dark red. If present, the fruit are yellowish-green, ovate, containing numerous flattened seeds, brownish-yellow with a pitted surface.
- B. Take a fragment of abaxial epidermis from the leaf. Examine under a microscope using *chloral hydrate solution R*: epidermis composed of cells with sinuous cell-walls, numerous anomocytic stomata (2.8.3) and uniseriate trichomes of 1-3 thin-walled cells, straight or slightly bent, ending in a point sometimes curved into a hook. Parenchyma cells containing numerous cluster crystals of calcium oxalate, isolated or aligned along the veins, sometimes associated with the epidermis.

TESTS

Foreign matter (2.8.2): maximum 2 per cent.

Loss on drying (2.2.32): minimum 70.0 per cent, determined on 5.0 g of finely-cut drug by drying in an oven at 105 °C for 2 h.

Passiflora caerulea. The presence of 5-lobed leaves shows adulteration by *Passiflora caerulea* L.

Passiflora edulis. The presence of 3-lobed leaves, denticulate (serrulate) measuring up to 15 cm

The General Chapters and General Monographs of the European Pharmacopoeia and Preamble of the French Pharmacopoeia apply.

long shows adulteration by *Passiflora edulis* L.

Passiflora quadrangularis. The presence of ovoid lobeless leaves shows adulteration by *Passiflora quadrangularis* L.

STOCK

DEFINITION

Passion flower mother tincture complies with the requirements of the general technique for the preparation of mother tinctures (see *Homoeopathic Preparations (1038)* and French Pharmacopoeia Supplement). The mother tincture is prepared with ethanol (65 per cent V/V), using the fresh, aerial part of *Passiflora incarnata* L.

Content: minimum 0.14 per cent *m/m* of total flavonoids, expressed as vitexin (C₂₁H₂₀O₁₀; M_r 432.4).

CHARACTERS

Appearance: greenish liquid.

IDENTIFICATION

Thin-layer chromatography (2.2.27).

Test solution. Mother tincture.

Reference solution. Dissolve 20 mg of *saponarin R*, 5 mg of *orientin R* and 5 mg of *iso-orientin R* and 20 mg of *vitexin R* in 100 mL of *methanol R*. Take 5.0 mL of this solution and dilute to 20.0 mL with *methanol R*.

Plate: TLC silica gel plate R.

Mobile phase: anhydrous formic acid R, water R, methyl ethyl ketone R, ethyl acetate R (10:10:30:50 V/V/V/V).

Application: 40 µL as bands.

Development: over a path of 15 cm.

Drying: in air.

Detection: first spray with a 10 g/L solution of *diphenylboric acid aminoethyl ester R* in *methanol R* then with a 50 g/L solution of *macrogol 400 R* in *methanol R*. Allow the plate to dry for about 30 min. Examine in ultraviolet light at 365 nm.

Results: see below the sequence of fluorescent zones present in the chromatograms obtained with the reference solution and the test solution. Furthermore other faint, fluorescent zones may be

The General Chapters and General Monographs of the European Pharmacopoeia and Preamble of the French Pharmacopoeia apply.

present in the chromatogram obtained with the test solution.

Top of the plate	
Vitexin: a greenish-yellow zone -----	An orange zone (solvent border) A greenish-yellow zone (vitexin)*
Orientin: an orange-yellow zone	An orange-yellow zone (orientin)* A greenish-yellow zone (isovitexin)
Iso-orientin: an orange-yellow zone -----	An orange-yellow zone (iso-orientin)
Saponarine: a greenish-yellow zone	A greenish-yellow zone Several greenish-yellow zones
Reference solution	Test solution

*These two bands may not be present

TESTS

Ethanol (2.9.10): 60 per cent *V/V* to 70 per cent *V/V*.

Methanol and 2-propanol (2.9.11): maximum 0.05 per cent *V/V*; maximum 0.05 per cent *V/V*.

Dry residue (2.8.16): minimum 1.2 per cent *m/m*.

ASSAY

Ultraviolet and visible absorption spectrophotometry (2.2.25).

Stock solution. In a 20.0 mL volumetric flask, place a sample *m* accurately weighed, of about 2.000 g of mother tincture and dilute to 20.0 mL with *glacial acetic acid R*.

Test solution. Place 1.0 mL of stock solution into a 25.0 mL volumetric flask. Add 10 mL of a mixture of 10 volumes of *methanol R* and 100 volumes of *glacial acetic acid R*. Add 10 mL of a 25 g/L *boric acid R* and 20 g/L *oxalic acid R* solution in *anhydrous formic acid R* and dilute to 25.0 mL with *glacial acetic acid R*.

Compensation liquid. Place 1.0 mL of stock solution into a 25.0 mL volumetric flask. Add 10 mL of a mixture of 10 volumes of *methanol R* and 100 volumes of *glacial acetic acid R*. Add 10 mL of *anhydrous formic acid R* then dilute to 25.0 mL with *anhydrous acetic acid R*.

Measure the absorbance (2.2.25) of the test solution 30 min later, at 401 nm, in comparison with compensation liquid.

The General Chapters and General Monographs of the European Pharmacopoeia and Preamble of the French Pharmacopoeia apply.

Calculate the percentage content m/m of total flavonoids, expressed as vitexin, from the expression:

$$\frac{A \times 0.8}{m}$$

i.e. taking 628 as the specific absorbance value of vitexin.

A = absorbance of the test solution, at 401 nm,

m = mass of the mother tincture sample, in grams.