MATRICARIA
FOR HOMOEOPATHIC PREPARATIONS

CHAMOMILLA VULGARIS
FOR HOMOEOPATHIC PREPARATIONS

Chamomilla recutita ad praeparationes homoeopathicas

Other Latin names used in homoeopathy: **Chamomilla**
Matricaria chamomilla
Matricaria recutita

DEFINITION

Whole, fresh, blooming plant, *Chamomilla recutita* (L.) Rauschert (*Matricaria recutita* L., *M. chamomilla* L.).

CHARACTERS

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

Characteristic, aromatic odour.

IDENTIFICATION

A. Plant with spindly, tortuous taproot, glabrous, ramose, erect stem. Alternate, bipinnatisect leaves with filiform segments. Corymb inflorescence with terminal capitula about 2 cm in diameter, isolated on each ramification. Involucre composed of 3 layers of scarious, lanceolate bracts, obtuse at the top, whitish on the margin, greenish in the centre. 12 to 18 white margin flowers, always female. Calyx composed of 5 concrete sepals linked together at their base, but ending with a thickened ridge. White, ligulate, 3-toothed corolla crossed by 4 parallel veins. Unilocular, inferior ovary, topped by a short style, with 2 very short and outwardly bent stigmas. Hermaphrodite centre flowers, with small calyx; 5 concrete sepals linked together ending with a small ridge at the tip and a yellow tubular corolla with 5 concrete petals in a funnel-shaped tube enlarged at the top. Five stamens inserted on the corolla with free filaments and anthers linked in a tube run through by the style.

B. Examine a fragment of leaf under a microscope, using *chloral hydrate solution R*: abaxial epidermis covered with a thin striated cuticule, composed of lobe-outlined cells, stomata of anomocytic type (*2.8.3*), covering trichomes and scarce secretory trichomes. Multicellular, uniseriate covering trichomes showing a monoliform basal part composed of several isodiametric cells (about 5 to 7) with slightly sclerified cell-walls; flexuous distal cell with cellulose cell-wall, longer than the group of basal cells, tapered at its end. Sessile, multi-cellular and biseriate secretory trichomes of Asteraceae type.

TESTS

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

Foreign matter (*2.8.2*): maximum 5 per cent.

Loss on drying (*2.2.32*): minimum 60.0 per cent, determined on 5.0 g of finely-cut drug, by drying in an oven at 105 °C for 2 h.

Chamaemelum nobile. The presence of florets isolated at the base by scales or paleae shows adulteration by *Chamaemelum mobile* L.

Tanacetum parthenium. The presence of entire leaves, once or twice pinnatifid, with non filiform, dull blue green lamina and a camphor fragrance, as well as the presence of a flat receptacle bearing an outside row of flowers with white ligules show adulteration by *Tanacetum parthenium* L.

STOCK

DEFINITION

Matricaria mother tincture complies with the requirements of the general technique for the preparation of mother tinctures (see *Homoeopathic Preparations (1038)* and French Pharmacopoeia Authority Supplement). The mother tincture is prepared with ethanol (45 per cent *V/V*) using the whole, fresh, blooming plant, *Chamomilla recutita* (L.) Rauschert.

Content: minimum 0.006 per cent *m/m* of herniarine ($C_{10}H_8O_3$; M_r 176.2).

CHARACTERS

Appearance: brownish-yellow liquid.

IDENTIFICATION

Thin layer chromatography (*2.2.27*).

Test solution. Mother tincture.

Reference solution. Dissolve 5 mg of *herniarine R* and 5 mg of *umbelliferone R* in 50 mL of *ethanol* (*96 per cent*) *R*.

Plate: *TLC silica gel plate R*.

Mobile phase: *dilute acetic acid R, ether R, toluene R* (10:50:50 *V/V/V*) (upper layer).

Application: 10 µL, as bands.

Development: over a path of 10 cm.

Drying: in air.

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

Detection: 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 present in the chromatogram obtained with the test solution.

Top of the plate	
Herniarine: an intense blue zone Umbelliferone: a greenish-blue zone	An intense blue zone (herniarine) A greenish-blue zone
Reference solution	**Test solution**

TESTS

Ethanol (*2.9.10*): 40 per cent *V/V* to 50 per cent *V/V*.

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

ASSAY

Liquid chromatography (*2.2.29*).

Test solution. In a 50.0 mL volumetric flask, place 10.000 g of mother tincture and dilute to 50.0 mL with *ethanol* (60 per cent *V/V) R.*

Reference solution. In a 20.0 mL volumetric flask, dissolve 10.0 mg of *herniarine R* and 10.0 mg of *umbelliferone R* in *ethanol* (60 per cent *V/V*) *R* and dilute to 20.0 mL with the same solvent. Take 5.0 mL of this solution and dilute to 50.0 mL with *ethanol* (60 per cent *V/V*) *R*.

Column:
- *size*: *l* = 0.25 m, Ø = 4 mm,
- *stationary phase*: *octadecylsilyl silica gel for chromatography R* (5 µm).

Mobile phase: mix 200 mL of *acetonitrile R,* 800 mL of *water R* and 10 mL of *glacial acetic acid R.*

Flow rate: 1.0 mL/min.

Detection: spectrophotometer at 320 nm.

Injection: 10 µL.

Retention time: herniarine: about 41 min; umbelliferone: about 13 min.

System suitability: reference solution.
– *symmetry factor of herniarine*: 0.9 to 1.3.

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

Calculate the percentage content *m/m* of herniarine, from the expression:

$$\frac{A_1 \times m_2 \times 25}{A_2 \times m_1}$$

A_1 = area of the peak of herniarine in the chromatogram obtained with the test solution,
A_2 = area of the peak of herniarine in the chromatogram obtained with the reference solution,
m_1 = mass of the mother tincture sample, in grams,
m_2 = mass of the sample of herniarine in the reference solution, in grams.

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