ELTROT
FOR HOMOEOPATHIC PREPARATIONS

HERACLEUM SPHONDYLIUM
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Heracleum sphondylium ad praeparationes homoeopathicas

Other Latin name used in homoeopathy: **Branca ursina**

DEFINITION

Whole, fresh, blooming plant, *Heracleum sphondylium* L.

CHARACTERS

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

IDENTIFICATION

A. Main root, transversally striated, producing more or less numerous secundary roots. Hardy, hollow stem reaching 1.50 m, ramose at the tip, strongly grooved, covered with short and stiff hairs. Leaves with bristled hairs under the veins, green upper side and whitish underneath; long petioled, lower leaves with pinnatisect limba and terminal lobe more or less divided into 3 lobes; upper leaves with enlarged sheath-like petiol and more or less tripartite limba. Umbels up to 15 cm in diameter, composed of 12 to 40 rays. Dissimilar flowers, the ones on the border much bigger than those in the center. White petals, deeply bifid, those around the umbels more developed than the others. Possible presence of oboval, glabrous, compressed diachenes, emarginate at the top and surrounded by a flat rim.

B. Take a sample from underside epidermis of a leaf. Examine under a microscope using *chloral hydrate solution R.* Numerous anomocytic-like stomata (*2.8.3*) and long, slim, unicellular covering trichomes with rigid walls.

TESTS

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

Loss on drying (*2.2.32*): minimum 70.0 per cent determined on 10.0 g of finely-cut drug, by drying in an oven at 105 °C for 2 h.

STOCK

DEFINITION

Eltrot mother tincture complies with the requirements of the general technique for the preparation of mother tinctures (see *Homoeopathic Preparations (1038)* and French Pharmacopoeia Authority

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

Supplement). The mother tincture is prepared with ethanol (55 per cent *V/V*), using the whole, fresh, blooming plant, *Heracleum sphondylium* L.

Content: minimum 0.0040 per cent *m/m* of xanthotoxin ($C_{12}H_8O_4$; M_r 216.2).

CHARACTERS

Appearance: brownish-green liquid.

IDENTIFICATION

Thin layer chromatography (*2.2.27*).

Test solution. Mother tincture.

Reference solution. Dissolve 10 mg of *bergapten R* and 10 mg of *scopoletin R* in 10 mL of *methanol R.*

Plate: *TLC silica gel F_{254} plate R.*

Mobile phase: *ethyle acetate R, toluene R* (15:85 *V/V*).

Application: 10 µL, as bands.

Development: over a path of 15 cm.

Drying: in air.

Detection: examine in ultraviolet light at 254 nm.

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

Top of the plate	
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Bergapten: a dark zone	A dark zone A dark zone A dark zone
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Scopoletin: a blue fluorescent zone	
Reference solution	**Test solution**

TEST

Ethanol (*2.9.10*): 50 per cent *V/V* to 60 per cent *V/V*.

Dry residue (*2.8.16*): minimum 1.6 per cent *m/m*.

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ASSAY

Liquid chromatography (*2.2.29*).

Test solution. In a 20.0 mL volumetric flask, dissolve 5.000 g of mother tincture in *methanol R* and dilute to 20.0 mL with *methanol R*.

Reference solution. In a 25.0 mL volumetric flask, dissolve 25.0 mg of *xanthotoxin R* in *ethanol* (55 per cent *V/V*) *R* and dilute to the volume with the same solvent. In a 50.0 mL volumetric flask, transfer 5.0 mL of this solution and dilute to the volume with *ethanol* (55 per cent *V/V*) *R*. In a 25.0 mL volumetric flask, transfer 5.0 mL of this solution and dilute with *ethanol* (55 per cent *V/V*) *R.*

Column:
- *size*: *l* = 0. 25 m, Ø = 4,6 mm,
- *stationary phase*: *octadecylsilyl silica gel for chromatography R* (5 µm).

Mobile phase: *phosphoric acid R*, *acetonitrile R, water R* (1:38:62 *V/V/V*).

Flow rate: 1.0 mL/min.

Detection: spectrophotometer at 250 nm.

Injection: 20 µL.

Retention time: xanthotoxin: about 10 min.

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

$$\frac{A_1 \times m_2 \times 8}{A_2 \times m_1 \times 5}$$

A_1 = peak area corresponding to xanthotoxin in the test solution,
A_2 = peak area corresponding to xanthotoxin in the reference solution,
m_1 = mass of the mother tincture sample, in grams,
m_2 = mass of xanthotoxin sample in the reference solution, in grams.

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