

**DEVIL'S CLAW ROOT  
FOR HOMOEOPATHIC PREPARATIONS**

**HARPAGOPHYTUM  
FOR HOMOEOPATHIC PREPARATIONS**

**Harpagophytum ad praeparationes homoeopathicas**

The herbal drug complies with the requirements of monograph *Devil's claw root (1095)*.

**STOCK**

**DEFINITION**

Devil's claw root 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 dried secondary roots of *Harpagophytum procumbens* DC. and/or de *H.zeyheri* L. Decne.

*Content:* minimum 0.12 per cent *m/m* of harpagoside (C<sub>24</sub>H<sub>30</sub>O<sub>11</sub>; M<sub>r</sub> 494.5).

**CHARACTERS**

*Appearance:* red-brown liquid.

**IDENTIFICATION**

Thin-layer chromatography (2.2.27).

*Test solution.* Mother tincture.

*Reference solution.* Dissolve 10 mg of *harpagoside R* and 10 mg of *aucubine R* in *methanol R* and dilute to 10 mL with the same solvent.

*Plate:* TLC silica gel GF<sub>254</sub> plate R.

*Mobile phase:* ethanol (96 per cent V/V) R, methylene chloride R (10:20 V/V).

*Application:* 20 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 A:* examine in ultraviolet light at 254 nm.

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

Top of the plate	
-----	-----
Harpagoside: a dark zone	A dark zone (harpagoside)
-----	-----
Two dark zones	Two dark zones
<b>Reference solution</b>	<b>Test solution</b>

*Detection B:* spray with *anisaldehyde solution R*. Heat the plate for 10 min at 100-105 °C. Examine in daylight.

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

Top of the plate	
-----	-----
Harpagoside: an intense purple zone	An intense purple zone (harpagoside)
-----	-----
Aucubine: a brown zone	A brown zone
-----	-----
A purple-brown zone	A purple-brown zone
<b>Reference solution</b>	<b>Test solution</b>

## TESTS

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

**Dry residue:** minimum 2.5 per cent *m/m*.

## ASSAY

Liquid chromatography (2.2.29).

*Internal standard solution.* In a 100.0 mL volumetric flask, dissolve 0.130 g of *methyl cinnamate R* in 50 mL of *methanol R* and dilute to 100.0 mL with the same solvent.

---

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

**French Pharmacopoeia 2007**

*Test solution.* In a 25.0 mL volumetric flask, place an accurately-weighed sample of 5.00 g of mother tincture and dilute to 25.0 mL with *methanol R*. To 10.0 mL of this solution add 1.0 mL of the internal standard solution and dilute to 25.0 mL with *methanol R*.

*Reference solution.* In a 10.0 mL volumetric flask, dissolve 4 mg of *harpagoside R* in *methanol R* and dilute to 10.0 mL with the same solvent.

*Column:*

- *size:*  $l = 0.25$  m,  $\varnothing = 4.6$  mm,
- *stationary phase:* *octadecylsilyl silica gel for chromatography R* (5  $\mu$ m),
- *temperature:* ambient.

*Mobile phase:* *methanol R*, *water R* (50:50 V/V).

*Flow rate:* 1.5 mL/min.

*Detection:* spectrophotometer at 278 nm.

*Injection:* 20  $\mu$ L.

Inject the test solution. Adjust the sensitivity of the detector so that the height of the peak due to methyl cinnamate is about 50 per cent of the full scale of the recorder.

Determine the retention time of harpagoside using 20  $\mu$ L of the reference solution examined in the same conditions as the test solution.

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

$$\frac{m_2 \times A_1 \times 7.622}{m_1 \times A_2}$$

$A_1$  = peak area for harpagoside in the test solution chromatogram,

$A_2$  = peak area for methyl cinnamate in the reference solution chromatogram,

$m_1$  = mass of the sample in grams,

$m_2$  = mass of methyl cinnamate in 100.0 mL of internal standard solution in grams.

---

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