

**GREATER BURDOCK  
FOR HOMOEOPATHIC PREPARATIONS**

**LAPPA MAJOR  
FOR HOMOEOPATHIC PREPARATIONS**

**Arctium lappa ad praeparationes homoeopathicas**

**DEFINITION**

Fresh root of *Arctium lappa* L. (= *A. majus* (Gaertn.) Bernh., *Lappa major* Gaertn.), harvested during the first year's fall or in the following spring before flowering time.

**IDENTIFICATION**

Long, fleshy taproot. Grey or pale brown surface. Yellowish-grey fracture. On the cross-section under the brownish suber, parenchymatous libero-cortical region, thick, whitish showing in its depth radiating liber cones which join narrow, vascular strands in the ligneous cylinder.

**TESTS**

**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.

**STOCK**

**DESCRIPTION**

Greater burdock mother tincture is prepared with *ethanol* (55 per cent V/V), using the dried root of *Arctium lappa* L. (= *A. majus* (Gaertn.) Bernh., *Lappa major* Gaertn.).

*Content*: minimum 0.9 per cent *m/m* of total cetohehexoses, expressed as fructose (C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>; *M<sub>r</sub>* 180.2).

**PRODUCTION**

*Method 1.1.10 (2371)*. Drug fragmented into segments about 3-4 cm long. Maceration time: 3-5 weeks.

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

## CHARACTERS

*Appearance:* yellow liquid.

Earthy odour.

## IDENTIFICATION

Thin-layer chromatography (2.2.27).

*Test solution.* Mother tincture.

*Reference solution.* Dissolve 5 mg of *chlorogenic acid R* and 5 mg of *rosmarinic acid R* in 40 mL of *ethanol (96 per cent) R*.

*Plate:* TLC silica gel plate R.

*Mobile phase:* water R, methanol R, glacial acetic acid R, methylene chloride R (2:3:8:15 V/V/V/V).

*Application:* 20 µL, as bands.

*Development:* over a path of 10 cm.

*Drying:* in air.

*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	
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Rosmarinic acid: a blue zone	A blue zone of various intensity
Chlorogenic acid: a blue zone	A blue zone
	A blue zone
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<b>Reference solution</b>	<b>Test solution</b>

## TESTS

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

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

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

## ASSAY

Ultraviolet and visible absorption spectrophotometry (2.2.25).

*Test solution.* In a 100.0 mL volumetric flask, place 0.500 g of mother tincture and dilute to 100.0 mL with *water R*.

*Compensation liquid.* *Water R*.

*Reference solutions.* In a 100.0 mL volumetric flask, dissolve 20.0 mg of *fructose R* in *water R* and dilute to 100.0 mL with the same solvent. In 20.0 mL volumetric flasks, place 6.0 mL, 10.0 mL and 14.0 mL of this solution and dilute respectively to 20.0 mL with *water R*.

In different test tubes, place 1.0 mL of each solution, add 0.2 mL of a 5 g/L solution of *indolacetic acid R* in *anhydrous methanol R* and 8 mL of *hydrochloric acid R*. Seal tightly the test tubes, shake vigorously and heat in a water-bath at 37 °C for 1 h. Cool under running water.

Measure immediately the absorbance of the reference solutions and of the test solution at 520 nm, in comparison with the compensation liquid.

Calculate the percentage content *m/m* in total cetohehexoses, expressed as fructose, from the expression:

$$\frac{C \times 10}{m}$$

*C* = concentration of the test solution in mg/mL, determined on the calibration curve plotted according the concentrations of the reference solution,

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