

**CURLED DOCK
FOR HOMOEOPATHIC PREPARATIONS**

**RUMEX CRISPUS
FOR HOMOEOPATHIC PREPARATIONS**

Rumex crispus ad praeparationes homoeopathicas

DEFINITION

Fresh root of *Rumex crispus* L.

CHARACTERS

Macroscopic characters described under identification.

Pungent smell.

IDENTIFICATION

Taproot, fleshy, saffron yellow with a surface furrowed with wrinkles and annular striations.

TESTS

Foreign matter (2.8.2): maximum 5 per cent.

Loss on drying (2.2.32): minimum 50.0 per cent, determined on 5.0 g of finely-cut drug by drying in an oven at 105 °C for 2 h.

STOCK

DEFINITION

Curled dock 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 fresh root of *Rumex crispus* L.

Content: minimum 0.003 per cent *m/m* of total hydroxyanthracene derivatives, expressed as emodin (C₁₅H₁₀O₅; *M_r* 270.2).

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

CHARACTERS

Appearance: reddish-brown liquid.

IDENTIFICATION

Thin-layer chromatography (2.2.27).

Test solution. Mother tincture.

Reference solution. Dissolve 10 mg of *emodin R* and 5 mg of *dihydroxyanthraquinone R* in 20 mL of *methanol R*.

Plate: TLC silica gel plate *R*.

Mobile phase: anhydrous formic acid *R*, ethyl acetate *R*, toluene *R* (5:25:70 V/V/V).

Application: 30 µL of test solution and 20 µL of reference solution, 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	
Dihydroxyanthraquinone (a yellow zone) Emodin: a yellow zone ----- -----	A yellow zone (dihydroxyanthraquinone) A yellow zone (emodin) ----- -----
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

Ultraviolet and visible absorption spectrophotometry (2.2.25).

Test solution. Place 5.000 g of mother tincture into a 250 mL round-bottomed flask, add 30 mL of *water R*. Heat under a reflux condenser for 15 min. Allow to cool and add 1.0 mL of a 50 g/L aqueous solution of *sodium bicarbonate R*. Add 20 mL of *ferric chloride solution R1* and shake.

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Heat under a reflux condenser while shaking for 20 min. Allow to cool. Add 1.0 mL of *hydrochloric acid R* and heat under a reflux condenser while shaking for 20 min.

Allow to cool. Transfer the solution into a 250 mL separating funnel and shake with 3 quantities, each of 30 mL of *ether R*, previously used to rinse the flask. Combine the ether phases and wash twice with 15 mL of *water R*. Filter the ether phases through a plug of absorbent cotton, into a 100.0 mL volumetric flask and dilute to 100.0 mL with *ether R*. Carefully evaporate to dryness 40.0 mL of this solution and dissolve the residue in 10.0 mL of a 50 g/L solution of *magnesium acetate R* in *methanol R*.

Reference solution. Dissolve 17.0 mg of *emodin R* in *methanol R* and dilute to 100.0 mL with the same solvent. Place 2.0 mL of this solution into a 20.0 mL volumetric flask and dilute to 20.0 mL with *methanol R*. Add 2.0 mL of a 50 g/L solution of *magnesium acetate R* in *methanol R* to 2.0 mL of this solution.

Compensation liquid. Methanol R.

Measure the absorbance of the test solution and the reference solution at 515 nm, in comparison with the compensation liquid.

Calculate the percentage content *m/m* of total hydroxyanthracene derivatives, expressed as emodin, from the expression:

$$\frac{A_1 \times m_2 \times 1.25 \times p}{A_2 \times m_1}$$

A_1 = absorbance of the test solution,

A_2 = absorbance of the reference solution,

m_1 = mass of the mother tincture sample, in grams,

m_2 = mass of emodin sample in the reference solution, in grams,

p = percentage content of emodin in *emodin R*.

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