SCARLET PIMPERNEL FOR HOMOEOPATHIC PREPARATIONS

ANAGALLIS ARVENSIS FOR HOMOEOPATHIC PREPARATIONS

Anagallis arvensis ad praeparationes homoeopathicas

DEFINITION

Whole, fresh, blooming plant *Anagallis arvensis* L.

CHARACTERS

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

IDENTIFICATION

A. Glabrous, highly ramose, herbaceous plant, 10 cm to 30 cm high. Stems either diffuse or spread out and ascendant. Slightly ramified roots. Sessile, opposite leaves but non amplecant, oval or lanceolate, entire, spread out, with 3 to 5 ribs, pitted with black on the underside. Solitary flower, at the leaves axil, borne on a filiform peduncle, the same size or just longer than the leaves, curved after the blossoming. Calyx with 5 very acute lobes separated nearly down to the base, with membranous edges. Rather small rotate corolla, hardly higher than the calyx, with 5 red petals, finely crenated or ciliated, glandular, only linked at the base. Five stamens, inserted at the base of the corolla and shorter than the corolla, with hairy filaments. Free ovary.

B. Take a sample from the underside epidermis. Examine under a microscope, using *chloral hydrate solution R.* Stomatiferous abaxial epidermis. Slightly lobed cells and stomata of anomocytic type (2.8.3). Cells of the lamina margin with papillae, covered with a smooth cuticle, asymmetrical and all bending towards the distal part of the leaf.

TESTS

Foreign matter (2.8.2) : maximum 5 per cent.

Loss on drying *(2.2.32) :* minimum 75.0 per cent, determined on 5.0 g of finely-cut drug, by drying in an oven at 105 °C for 2 h.

STOCK

DEFINITION

Scarlet pimpernel 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 (65 per cent *V/V*), using whole, fresh, blooming plant *Anagallis arvensis* L.
Content : minimum 0.05 per cent *m/m* of total flavonoids, expressed as hyperoside ($C_{21}H_{20}O_{12}$; M_r 464.4).

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

CHARACTERS

Appearance: greenish-brown liquid.

IDENTIFICATION

A. Thin layer chromatography (2.2.27).

Test solution. Mother tincture.

Reference solution. Dissolve 5 mg of *hyperoside R* and 5 mg of *rutin R* in 10 mL of *ethanol (96 per cent) R.*

Plate : TLC silica gel plate R.

Mobile phase : *anhydrous formic acid R, water R, ethyl acetate R* (10:10:80 *V/V/V*).

Application : 20 mL, as bands.

Development : over a path of 10 cm.

Drying : in air.

Detection : first spray with a 10 g/L solution of *diphenylboric acid aminoethyl ester R* in *methanol R* then with a 50 g/L solution of *macrogol 400 R* in *methanol R.* Allow the plate to dry for about 30 min. 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	
------ Hyperoside : an orange zone ------ Rutin : an orange zone	----- A greenish-yellow zone An orange zone -----
Test solution	**Reference solution**

B. Thin layer chromatography *(2.2.27).*

Test solution. Mother tincture.

Reference solution. Dissolve 10 mg of *diosgenin R* and 10 mg of *sarsasapogenin R* in 30 mL of *ethanol (96 per cent) R.*

Plate : TLC silica gel plate R.

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

Mobile phase : *methanol R, methylene chloride R, toluene* R (2:9:9 *V/V/V*).

Application : 30 mL, as bands.

Development : over a path of 10 cm.

Drying : in air.

Detection : spray with *alcoholic solution of sulphuric acid R* and heat at 100-105 °C for 10 min. 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	
------	A purplish-blue zone -----
Sarsasapogenin : a light blue zone	A light blue zone
Diosgenin : a blue zone	A greenish-blue zone
------	A blue zone ----
	Several pink zones
Reference solution	**Test solution**

TESTS

Ethanol (*2.9.10*)*:* 60 per cent V/V to 70 per cent *V/V.*

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

ASSAY

Ultraviolet *and visible absorption spectrophotometry (2.2.25).*

Test solution. Evaporate 0.500 g of mother tincture to dryness and under reduced pressure. Dissolve the residue in 25.0 mL of a mixture of 10 volumes of *methanol R* and 100 volumes of *glacial acetic acid R* (solution 1). In a 25.0 mL volumetric flask, place 10.0 mL of this solution, add 10 mL of a 25 g/L solution of *boric acid R* and 20 g/L of *oxalic acid R* in *anhydrous formic acid R* and dilute to 25.0 mL with *glacial acetic acid R.*

Compensation liquid. In a 25.0 mL volumetric flask, place 10.0 mL of solution 1, add 10 mL of *anhydrous formic acid R* and dilute to 25.0 mL with *glacial acetic acid R.*

Measure the absorbance of the test solution at 420 nm, 30 min later in comparison with the compensation liquid.

Calculate the percentage content *m/m* of total flavonoids, expressed as hyperoside, from the expression :

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

$$\frac{A \times 62.5}{460 \times m}$$

i.e : taking the specific absorbance of hyperoside to be 460 at 420 nm.

A = absorbance of the test solution at 420 nm,
m = mass of the mother tincture sample, in grams.

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