

**BUCKWHEAT
FOR HOMOEOPATHIC PREPARATIONS**

**FAGOPYRUM ESCULENTUM
FOR HOMOEOPATHIC PREPARATIONS**

Fagopyrum esculentum ad praeparationes homoeopathicas

Other Latin name used in homoeopathy: **Polygonum fagopyrum**

DEFINITION

Whole, fresh, blooming plant *Fagopyrum esculentum* Moench.

CHARACTERS

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

IDENTIFICATION

- A. Annual plant measuring up to 70 cm high with a spindly taproot. Hollow, erect stem often reddish, bearing spread out twigs. Stipulate, alternate, soft leaves relatively big with a cordiform lamina, deeply indented at the base and narrowed to a thin point at the apex. Stipules shaping a short membranous sheath at the junction of the stem and the leaf; lower leaves with a quite long petiole, at least as long as the lamina; sessile upper leaves. Racemes of flowers, short and tight, with a long peduncle; white or pinkish flowers about 4 mm long with 8 stamens and 3 distinct styles. Smooth 3-angle-fruit, unwrapped by the calyx.
- B. Examine a fragment of abaxial epidermis of the leaf, under a microscope, using *chloral hydrate solution R*. Abaxial epidermis of the midrib, covered with a striated cuticle, composed of elongated cells with stiff cell-walls and short unicellular covering trichomes with rounded end. Lamina epidermis, glabrous, covered with a smooth cuticle composed of cells with lobed outlines and anomocytic or anisocytic stomata (2.8.3).

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.

Fagopyrum tataricum. The presence of loose racemes and greenish or yellowish flowers smaller than 2 mm long, as well as the presence of fruit with denticulate angles and sides covered with very small tubercles, show adulteration by *Fagopyrum tataricum* L.

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

STOCK

DEFINITION

Buckwheat mother tincture complies with the requirements of the general technique for the preparation of mother tinctures (see *Homeopathic Preparations (1038)* and French Pharmacopoeia Supplement). The mother tincture is prepared with ethanol (65 per cent V/V), using the whole, fresh, blooming plant *Fagopyrum esculentum* Moench.

Content: minimum 0.060 per cent *m/m* of total flavonoids, expressed as rutin ($C_{27}H_{30}O_{16}$; $3H_2O$; M_r 665).

CHARACTERS

Appearance: orange-brown liquid.

IDENTIFICATION

Thin-layer chromatography (2.2.27).

Test solution. Mother tincture.

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

Plate: TLC silica gel plate *R*.

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

Application: 20 μ L 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.

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

Top of the plate	
Quercitrin: an orange zone -----	An orange zone (quercitrin) -----
-----	A green zone -----
Rutin: an orange zone	An orange zone (rutin)
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 1.0 per cent *m/m*.

ASSAY

Ultraviolet and visible absorption spectrophotometry (2.2.25).

Stock solution. In a 100.0 mL volumetric flask, place 1.000 g of mother tincture and dilute to 100.0 mL with *methanol R*.

Test solution. In a 10.0 mL volumetric flask, place 5.0 mL of stock solution and dilute to 10.0 mL with a 20 g/L solution of *aluminium chloride R* in *methanol R*.

Compensation liquid. In a 10.0 mL volumetric flask, place 5.0 mL of stock solution and dilute to 10.0 mL with *methanol R*.

Fifteen min later, measure the absorbance of the test solution at 425 nm, in comparison with the compensation liquid.

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

$$\frac{A \times 200}{370 \times m}$$

i.e. taking the specific absorbance of rutin, to be 370 at 425 nm.

A = absorbance of the test solution, at 425 nm,
m = mass of the mother tincture sample, in grams.

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