COMMON BOX
FOR HOMOEOPATHIC PREPARATIONS

BUXUS SEMPERVIRENS
FOR HOMOEOPATHIC PREPARATIONS

Buxus sempervirens ad praeparationes homoeopathicas

DEFINITION

Fresh, young, leafy twigs of *Buxus sempervirens* L.

CHARACTERS

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

IDENTIFICATION

A. Young twig, with a quadrangular section, yellowish-green, bearing numerous opposite leaves, on a short petiole, 1-3 cm long and 1-1.5 cm large. Entire lamina, oblong-oval, rounded or slightly indented at the apex, coriaceous with the upper side, dark green and glossy; the under side, paler, crossed by a central prominent rib.

B. Examine a fragment of abaxial epidermis of the leaf, under a microscope using *chloral hydrate solution R.* Epidermis of the lamina composed of polyhedral cells and numerous stomata of anomocytic type (*2.8.3*), surrounded by 6-10 subsidiary cells. Epidermis of the ribs composed of cells parallelepipedic to rectangular, elongated along the ribs, scarce covering trichomes (about 50 µm long) unicellular and straight with thickened cell-walls and tapered end.

TEST

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

Common box mother tincture complies with the requirements of the general technique for the preparation of the mother tincture (see *Homeopathic Preparations (1038)* and French Pharmacopoeia Supplement). The mother tincture is prepared with ethanol (65 per cent *V/V*), using the fresh, young, leafy twig of *Buxus sempervirens* L.

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

Adjusted content: minimum 0.06 per cent *m/m* and maximum 0.20 per cent *m/m* of total alkaloids, expressed as cyclobuxine D ($C_{25}H_{42}N_2O$; M_r 386.6).

CHARACTERS

Greenish-brown liquid.

IDENTIFICATION

Thin-layer chromatography (*2.2.27*).

Test solution. Mother tincture.

Reference solution. Dissolve 1 mg of *narcissin R* and 5 mg of *quercitrin R* in 10 mL of *methanol 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 µL 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* 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	
	A reddish-orange zone
	A blue zone
Quercitrin: an orange zone	
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	Two blue zones
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Narcissin: a greenish-yellow zone	A greenish-yellow zone (narcissin)
	A blue zone
	A greenish-yellow zone
Reference solution	**Test solution**

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

TEST

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

Dry residue (*2.8.16*): minimum 1.8 per cent *m/m*.

ASSAY

Evaporate 20.00 g of mother tincture to dryness, under reduced pressure on a water-bath at 60 °C. Dilute the residue twice with 2.5 mL of *concentrated ammonia R* and a few millilitres of *water R*. Extract with 5 quantities, each of 20 mL of *methylene chloride R*. Combine the organic phases and wash them with *water R* until neutrality is reached. Dry on *anhydrous sodium sulfate R* then evaporate to dryness on a water-bath at 80 °C. Dissolve the residue in 5 mL of *methylene chloride R*. Add 20.0 mL of *0.01 M hydrochloric acid,* 100 mL of *water R* and a few drops of *methyl red mixed solution (indicator) R,* if the solution does not turn violet, add 20.0 mL of *0.01 M hydrochloric acid* again. Evaporate the methylene chloride on a water-bath at 80 °C.

Titrate the excess of acid with *0.01 M sodium hydroxide.* Determine the equivalence point with potentiometry (*2.2.20*). Prepare a blank with 20.0 mL of *0.01 M hydrochloric acid* (or with 40.0 mL if need be) and 100 mL of *water R*.

Calculate the percentage content of total alkaloids, expressed as cyclobuxine D, from the expression:

$$\frac{(n_0 - n) \times 0.1933}{m}$$

n_0 = quantity of mL of *0.01 M sodium hydroxide* used for the blank,
n = quantity of mL of *0.01 M sodium hydroxide* used for the test,
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.