NEW JERSEY TEA, FRESH FOR HOMOEOPATHIC PREPARATIONS

CEANOTHUS AMERICANUS RECENS FOR HOMOEOPATHIC PREPARATIONS

Ceanothus americanus recens ad praeparationes homoeopathicas

Other homœpathic Latin name: **Ceanothus recens**

DEFINITION

Fresh leaf of *Ceanothus americanus* L., collected before the flowering period.

IDENTIFICATION

A. Simple, entire, oval to oblong-oval leaf, borne by a short petiole, occasionally curved or volute, 3-9 cm long and 1-3 cm wide; cordiform base or slightly rounded, obtuse, acute or acuminate apex; slightly dentate margins; glossy green upper side, pubescent underside near the veins; three veins emerging from the petiole, then becoming almost parallel; midrib giving birth to secondary veins in the top half of the leaf and ending at the apex; both lateral veins terminate in the upper three-quarters of the leaf.

B. Examine a fragment of abaxial epidermis under a microscope using *chloral hydrate solution R*: epidermis consisting of numerous anomocytic stomata (*2.8.3*) and unicellular or multicellular covering trichomes with thick, sclerified, canaliculate base, and tapering end.

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

DEFINITION

New jersey tea, fresh, mother tincture is prepared with ethanol (65 per cent *V/V*) using the fresh leaf of *Ceanothus americanus* L., collected before the flowering period.

Content: minimum 0.20 per cent *m/m* of total flavonoids, expressed as rutin ($C_{27}H_{30}O_{16}$, $3H_2O$; M_r 665).

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

PRODUCTION

Method 4c (2371). Whole drug. Maceration time: 3-4 weeks.

CHARACTERS

Brown liquid.

IDENTIFICATION

Thin-layer chromatography (*2.2.27*).

Test solution. Mother tincture.

Reference solution. Dissolve 10 mg of *quercitrin R* and 10 mg of *rutin 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 R* then with a 50 g/L solution of *macrogol 400 R* in *methanol R.* Allow the plate to dry in air 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 greenish-yellow zone
Quercitrin: an orange zone	An orange zone
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	A green zone topped by a yellow zone more or less separated
	One or two yellow zones more or less separated
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Rutin: an orange zone	An orange zone
	A yellow zone
Reference solution	**Test solution**

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

TESTS

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

Dry residue (*2.8.16*): minimum 1.5 per cent *m/m*.

ASSAY

Ultraviolet and visible absorption spectrophotometry (*2.2.25*).

Stock solution. Evaporate 1.000 g of mother tincture to dryness, under reduced pressure. Dilute the residue in 25.0 mL of a mixture of 10 volumes of *methanol R* and 100 volumes of *glacial acetic acid R.*

Test solution. Place 5.0 mL of stock solution into a 25.0 mL volumetric flask, add 5.0 mL of a mixture of 10 volumes of *methanol R* and 100 volumes of *glacial acetic acid R* then 10.0 mL of a 25.0 g/L *boric acid R* and 20.0 g/L *oxalic acid R* solution in *anhydrous formic acid R* and dilute to 25.0 mL with *glacial acetic acid R.*

Compensation liquid. Place 5.0 mL of stock solution into a 25.0 mL volumetric flask, add 5.0 mL of a mixture of 10 volumes of *methanol R* and 100 volumes of *glacial acetic acid R* then 10.0 mL of *anhydrous formic acid R* and dilute to 25.0 mL with *glacial acetic acid R.*

Reference stock solution. In a 50.0 mL volumetric flask, dissolve 10.0 mg of *rutin CRS* in a mixture of 10 volumes of *methanol R* and 100 volumes of *glacial acetic acid R* and dilute to 50.0 mL with the same mixture. In a 25.0 mL volumetric flask, place 10.0 mL of this solution, add a mixture of 10 volumes of *methanol R* and 100 volumes of *glacial acetic acid R* and dilute to 25.0 mL with the same mixture.

Reference solution. Place 5.0 mL of reference stock solution into a 25.0 mL volumetric flask, add 5.0 mL of a mixture of 10 volumes of *methanol R* and 100 volumes of *glacial acetic acid R*, then add 10.0 mL of a 25.0 g/L *boric acid R* and 20.0 g/L *oxalic acid R* solution in *anhydrous formic acid R* and dilute to 25.0 mL with *glacial acetic acid R.*

Compensation liquid of the reference solution. Place 5.0 mL of reference stock solution into a 25.0 mL volumetric flask, add 5.0 mL of a mixture of 10 volumes of *methanol R* and 100 volumes of *glacial acetic acid R* then 10.0 mL of *anhydrous formic acid R* and dilute to 25.0 mL with *glacial acetic acid R.*

Thirty min after the addition of the last reagent, measure the absorbance of the test solution and the reference solution at 420 nm, in comparison with the compensation liquids.

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

$$\frac{A_1 \times m_2 \times 0.2 \times p}{A_2 \times m_1}$$

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 *rutin CRS* sample, in grams,
p = percentage content of rutin in *rutin CRS.*

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