SENNA
FOR HOMOEOPATHIC PREPARATIONS

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Cassia senna et/vel Cassia angustifolia ad praeparationes homoeopathicas
Other Latin name used in homoeopathy: **Cassia angustifolia**

DEFINITION

The drug complies with the monograph *Senna (leaf) (0206).*

STOCK

DEFINITION

Senna mother tincture complies with the requirements of the general technique for the preparation of mother tinctures (see *Homoeopathic Preparations (1038)* and French Pharmacopoeia Supplement). The mother tincture is prepared with ethanol (65 per cent *V/V*), using the dried leaflets of *Cassia senna* L. (*C. acutifolia* Delile), known as Alexandrian or Khartoum senna, or of *Cassia angustifolia* Vahl, known as Indian or Tinnevelly senna, or a mixture of both species.

Content: minimum 0.08 per cent *m/m* of hydroxyanthracenic heterosides expressed as sennoside B ($C_{42}H_{38}O_{20}$; M_r 863).

CHARACTERS

Appearance: dark brown liquid.

IDENTIFICATION

A. Add 10 mL of *water R* and 2 mL of *hydrochloric acid R* to 5 mL of mother tincture. Heat on a water-bath for 15 min. Cool and shake with 40 mL of *ether R*. Separate the ether layer, dry it over *anhydrous sodium sulfate R,* then evaporate 5 mL of it to dryness. Add 5 mL of *dilute ammonia R1* to the cooled residue. An orange colour develops. Heat on a water-bath for 2 min. A reddish-purple colour appears.

B. Thin-layer chromatography (*2.2.27*).

Test solution. Mother tincture.

Reference solution. Dissolve 10 mg of *senna extract CRS* in 1 mL of a mixture of equal volumes of *ethanol* (*96 per cent*) *R* and *water R* (a tiny residue remains).

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Plate: *TLC silica gel plate R.*

Mobile phase: *glacial acetic acid R, water R, ethyl acetate R, propanol R* (1:30:40:40 *V*/*V*/*V*/*V*).

Application: 10 µL as bands.

Development: over a path of 10 cm.

Drying: in air.

Detection: spray with a 20 per cent *V/V* solution of *nitric acid R.* Heat the plate at 120 °C for 10 min. Allow to cool. Spray with a 50 g/L solution of *potassium hydroxide R* in *ethanol* (*50 per cent V/V*) *R* until zones occur. Examine in daylight.

Results: see below the sequence of zones present in the chromatograms obtained with the reference solution and the test solution. Furthermore other faint zones may be present in the chromatogram obtained with the test solution.

Top of the plate	
Sennoside C: a reddish-brown zone	A reddish-brown zone (sennoside C)
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Sennoside D: a reddish-brown zone	A reddish-brown zone (sennoside D)
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Sennoside A: a reddish-brown zone	A reddish-brown zone (sennoside A)
Sennoside B: a reddish-brown zone	A reddish-brown zone (sennoside B)
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 2.0 per cent *m/m.*

ASSAY

Ultraviolet and visible absorption spectrophotometry (*2.2.25*).

Carry out the assay protected from bright light.

Place 5.000 g of mother tincture into a 50.0 mL volumetric flask and dilute to 50.0 mL with *water R.* In a 150 mL separating funnel, place 20.0 mL of this solution and add 0.1 mL of *dilute hydrochloric acid R*. Shake with 3 quantities, each of 15 mL of *methylene chloride R.* Allow to separate and discard the organic layer. Add 0.10 g of *sodium bicarbonate R* and shake for 3 min. Centrifuge and transfer 10.0 mL of the supernatant liquid into a 100 mL flask. Add 20 mL of *ferric chloride solution R1* and mix. Heat under a reflux condenser for 20 min. Add 1 mL of *hydrochloric acid R*, heat for a further 20 min time, shaking frequently until dissolution of the precipitate and cool. Transfer the mixture into a separating funnel. Shake with 3 quantities, each of 25 mL of *ether R* previously used

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to rinse the flask. Combine the 3 ether layers and wash them twice with 15 mL of *water R*. In a volumetric flask place the ether layer and dilute to 100.0 mL with *ether R*. Carefully evaporate 10.0 mL of the ether solution to dryness and dissolve the residue in 10.0 mL of a 5 g/L solution of *magnesium acetate R* in *methanol R*.

Compensation liquid. *Methanol R.*

Measure the absorbance at 515 nm, in comparison with the compensation liquid.

Calculate the percentage content *m/m* of sennoside B, from the expression:

$$\frac{A \times 500}{240 \times m}$$

i.e. taking the specific absorbance, to be 240.

A = absorbance of the test solution at 515 nm,
m = mass of the mother tincture sample, in grams.

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