ACONITE
FOR HOMOEOPATHIC PREPARATIONS

ACONITUM NAPELLUS
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Aconitum napellus ad praeparationes homoeopathicas

Other Latin name used in homoeopathy: **Aconitum**

DEFINITION

Whole, fresh, blooming plant *Aconitum napellus* L.

CHARACTERS

Macroscopic characters described under identification.

IDENTIFICATION

Main root, lozenge-shaped, blackish, with a whitish fracture, bearing thin secondary roots, together (accompanied) with the tuber-root daughter. Straight, erect stem, rising up to 2 m high. Palmatisect, alternate leaves. Inflorescence in the shape of a spike with close blue flowers. Helmet-shaped, zygomorphous flower, made of 5 irregular calyx pieces. Upper sepal, larger than high, showing a rounded curve and covered with small hairs. Two spurred, upper sepals, inserted inside the calyx-shaped helmet, shaping nectariferous cones, the other 3 are reduced to stripes. Numerous stamens with hairy filaments. Ovary consisting of 3 carpels subsequently giving 3 follicles, about 15 mm long, plastered along the stem.

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.

Other aconites. The presence of flowers with yellow sepals and lancineate leaves shows adulteration by *A. anthora* L. The presence of pale yellow flowers with glaucous, palmately lobed leaves shows adulteration by *A. vulparia* Reichenbach. The presence of blue flowers, wrinkled fruits topped by a short beak, palmately lobed, lozenge-shaped leaves are indented into fairly short segments and rounded tubercle shows adulteration by *A. variegatum* L.

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

STOCK

DEFINITION

Aconite 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 (45 per cent *V/V*), using the whole, fresh, blooming plant *Aconitum napellus* L.

Adjusted content: minimum 0.02 per cent and maximum 0.05 per cent *m/m* of total alkaloids, expressed as aconitine ($C_{34}H_{47}NO_{11}$; M_r 646).

CHARACTERS

Appearance: brown liquid.

IDENTIFICATION

Carry out all the tests with caution.

Thin layer chromatography (*2.2.27*).

Test solution. To 10 mL of mother tincture add 1 mL of *ammonia R* and shake twice with 10 mL of *ether R.* Evaporate the combined ether layers to dryness, under reduced pressure. Dilute the residue in 0.5 mL of *methanol R*.

Reference solution. Dissolve 10 mg of *aconitine R* and 5 mg of *quinine R* in 10 mL of *methanol R*.

Plate: *TLC silica gel plate R*.

Mobile phase: *diethylamine R, ethyl acetate R, toluene R* (10:20:70 *V/V/V*).

Application: 20 µL as bands.

Development: over a path of 15 cm.

Drying: in air, then for 15 min at 100 °C.

Detection: spray with *potassium iodobismuthate solution R 1/5 diluted in hydrochloric acid R2*. Examine in daylight.

Results: see below the sequence of zones present in the chromatograms obtained with the reference solution and the test solution.

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

Top of the plate	
	One-two orange zones
Aconitine: an orange zone	An orange zone (aconitine)
-----	An orange zone -----
-----	One-two orange zones
Quinine: an orange zone	
Reference solution	**Test solution**

TESTS

Ethanol (*2.9.10*): 40 per cent *V/V* to 50 per cent *V/V*.

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

ASSAY

Evaporate the ethanol of 100.0 g of mother tincture under reduced pressure. Add 25 mL of *0.5 M sulfuric acid* to the aqueous solution. Shake. Transfer into a 250 mL separating funnel. Rinse the flask successively with 3 quantities, each of 10 mL of *0.5 M sulfuric acid.* Shake after each addition. Combine the sulfuric solutions into a separating funnel. Alkalinise the combined acid phases with *ammonia R* and shake cautiously with 20 mL of *methylene chloride R*. Collect the organic phase. Use the alkaline phase again and repeat the process, each time with 20 mL of *methylene chloride R,* until complete extraction of the alkaloids[1]. Combine the organic phases and wash them with 20 mL of *water R*. Filter through *anhydrous sodium sulfate R* and rinse the filter with 3 quantities, each of 10 mL of *methylene chloride R*. Combine the organic phases. Evaporate to dryness, under reduced pressure. Dissolve the residue in 20 mL of *0.01 M sulfuric acid* and titrate with *0.02 M sodium hydroxide* in presence of *methyl red solution R.*

1 mL of *0.01 M sulfuric acid* corresponds to 12.92 mg of total alkaloids, expressed as aconitine.

[1] Evaporate a few millilitres to dryness. Dissolve in 1-2 mL of *sulfuric acid 0.5 M* and check the absence of alkaloids with *potassium tetraiodomercurate solution R.*

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