Flame: air-acetylene.

Zinc: maximum 50.0 ppm.

Atomic absorption spectrometry (*2.2.23, Method I*).

Test solution. Use the test solution prepared for the test for iron.

Reference solutions. Prepare the reference solutions using *zinc standard solution (100 ppm Zn) R*, diluted as necessary with a 1 per cent *V/V* solution of *nitric acid R*.

Source: zinc hollow-cathode lamp.

Wavelength: 213.9 nm.

Flame: air-acetylene.

ASSAY

Dissolve 0.100 g in 5 ml of *nitric acid R*. Heat to expel the nitrous fumes. Add 200 ml of *water R* and neutralise (*2.2.3*) with *dilute ammonia R1*. Add 1 g of *ammonium chloride R* and 3 mg of *murexide R*. Titrate with *0.1 M sodium edetate* until the colour changes from green to violet.

1 ml of *0.1 M sodium edetate* is equivalent to 6.354 mg of Cu.

01/2008:2023

GARLIC FOR HOMOEOPATHIC PREPARATIONS

Allium sativum ad praeparationes homoeopathicas

DEFINITION

Fresh bulb of *Allium sativum* L.

CHARACTERS

It has a characteristic odour after cutting.

IDENTIFICATION

The bulb is generally 3 cm to 5 cm broad and almost spherical; the flat base bears the remnants of numerous short greyish-brown adventitious roots. The bulb consists of about 10 daughter bulbs (cloves) arranged roughly in a circle around a central axis. Individual daughter bulbs are 1 cm to 3 cm long, laterally compressed and convex on the dorsal side. Each daughter bulb has a tough, white or reddish skin around a fleshy tubular leaf, investing a more or less rounded elongated cone of leaf primordia and vegetative apex.

TESTS

Water (*2.2.13*): minimum 55.0 per cent, determined on 10.0 g of the finely cut drug, if performed to demonstrate the freshness of the drug.

Mother tincture

The mother tincture complies with the requirements of the general monograph on *Mother tinctures for homoeopathic preparations (2029)*.

PRODUCTION

The mother tincture of *Allium sativum* L. is prepared by maceration of the cut drug using alcohol of a suitable concentration.

CHARACTERS

Appearance: brownish-yellow liquid.

It has a peculiar and unpleasant aromatic odour.

IDENTIFICATION

A. To 2 ml of the mother tincture to be examined, add 0.2 ml of *dilute sodium hydroxide solution R*. A yellowish-white precipitate develops.

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

Test solution. Extract 5 ml of the mother tincture to be examined with 2 quantities, each of 10 ml, of *ether R*. Combine the ether layers and dry over *anhydrous sodium sulphate R*. Filter and evaporate the filtrate in a water-bath at low temperature. Dissolve the residue in 0.4 ml of *methanol R*.

Reference solution. Dissolve 10 mg of *resorcinol R*, 10 mg of *thymol R* and 30 mg of *gallic acid R* in 10 ml of *methanol R*.

Plate: *TLC silica gel F_{254} plate R*.

Mobile phase: *anhydrous formic acid R, toluene R, di-isopropyl ether R* (10:40:50 *V/V/V*).

Application: 40 µl of the test solution and 10 µl of the reference solution.

Development: over a path of 10 cm.

Drying: in air.

Detection: examine in ultraviolet light at 254 nm and identify gallic acid; spray with *anisaldehyde solution R*, heat to 105-110 °C for 5-10 min. Examine in daylight within 10 min.

Results: see below the sequence of the zones present in the chromatograms obtained with the reference solution and the test solution. Other zones may also be visible in the chromatogram obtained with the test solution.

Top of the plate	
	An intense reddish-violet zone
Thymol: an orange-red zone	
	An intense reddish-violet zone
	A violet zone
	A yellowish or greenish zone
———	———
Resorcinol: an intense orange-red zone	
———	———
Gallic acid: a yellow zone	A violet zone
(UV at 254 nm: a fluorescent quenching zone)	A greenish-yellow zone
	A violet zone may be present
Reference solution	**Test solution**

TESTS

Relative density (*2.2.5*): 0.885 to 0.960.

Ethanol (*2.9.10*): 50 per cent *V/V* to 70 per cent *V/V*.

Dry residue (*2.8.16*): minimum 4.0 per cent.

STORAGE

In an airtight container.