

Arnica montana ex herba ad usum externum

Arnica ad usum externum

Fresh aerial parts of *Arnica montana* L., collected at flowering time

Description

The basal leaves, which form a dense rosette, are elongated-obovate and narrow to a sometimes very long, tapering petiolate base. They are usually up to 160 mm, sometimes up to 280 mm long and up to 40 mm wide, with slightly undulate entire margins and obtuse or acute at the apex. The light-coloured midrib is clearly discernible and projects on the underside; two to four fine, less prominent lateral veins run lengthwise through the leaf. The leaves have ciliate margins and are covered to a varying degree with villous glandular hairs.

The round stem grows to a height of 200 to 600 mm and is simple or with just a few branches and likewise covered with glandular hairs and longer simple trichomes, particularly in the upper part. The stem bears one or two pairs of opposite or distantly paired leaves that are smaller than the leaves in the rosette.

The stem usually bears one flower head, though in rare cases additional flower heads may grow from the axils of the upper stem leaves. The flower heads are 60 to 80 mm in diameter and golden-yellow to orange-yellow. Each head is invested with a bell-shaped involucre of 20 to 40 narrowly lanceolate bracts arranged in two rows. The bracts are up to 15 mm long, pointed and green, with long villous hairs and sometimes a red tinge. The disc is 6 to 10 mm wide, slightly convex, with short, stiff white hairs. The 14 to 20 yellow ligulate ray florets are 15 to 40 mm long, usually all female; their corollas are tubular at the base and hairy on the outside and terminate in a trilobate ligule that shows some degree of irregular reflexion. The pistil, ovary and pappus are like those of the tubular florets.

The 50 or more tubular disc florets, which open from the outside inwards, are hermaphrodite and up to 15 mm long. The lower part of the corolla is light yellow, bulbous and hairy on the outside; it widens half way up and terminates in an orange-yellow margin that is cleft into five deltoid lobes that are varyingly reflexed. The five stamens are about 6 mm long, the cuticulae on the anthers fused to form a tube, with the free filaments inserted at about the centre of the corolla tube. The connectives taper at the upper end into a short triangular lobe. The branches of the filiform style are initially close together and later open outwards. The brownish ovary narrows slightly at the base and is 4 to 6 mm long, elliptical to slightly quadrangular or pentagonal, glabrous only at the base and elsewhere, particularly at the upper end, densely covered with upward-pointing hairs. At the tip is a uniseriate pappus of yellowish white very brittle bristles; this is 8 mm long, which is about the same length as the corolla.

Dosage forms

Production

Prepare the tincture according to Method 12b.

Characteristics

The tincture is a green-yellow liquid.

Identification

Thin-layer chromatography (2.2.27)

Test solution: To 5 ml of the tincture add 1 ml of saturated sodium chloride solution *R* and 1 ml of hexane *R* and shake vigorously. The upper phase is the test solution.

Reference solution: Dissolve 20 mg of hydroquinone *R*, 10 mg of linalol *R* and 10 mg of anethole *R* in 10 ml of methanol *R*.

Plate: TLC silica gel plate *R*

Mobile phase: ethyl acetate *R*, toluene *R* (20:80 *V/V*)

Application: 40 µl of the test solution and 10 µl of the reference solution; as bands of 20 mm

Development: over a path of 10 cm

Detection: Allow the mobile phase to evaporate, then spray the plate with anisaldehyde solution *R*, heat at 100 to 105 °C for 5 to 10 min and 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. Additional zones may be present in the chromatogram obtained with the test solution.



Top of the plate	
Anethole: a violet zone _____	A violet zone _____
Linalol: a violet zone _____	A violet zone A violet zone A violet zone _____
Hydroquinone: a yellow-brown zone	A tapering violet zone
Reference solution	Test solution

Tests

Relative density (2.2.5): 0.890 to 0.910

Dry residue (H 2.2.6): minimum 0.7 per cent

Storage

Store protected from light.