

**STICKYWILLY  
FOR HOMOEOPATHIC PREPARATIONS**

**GALIUM APARINE  
FOR HOMOEOPATHIC PREPARATIONS**

**Galium aparine ad praeparationes homoeopathicas**

DEFINITION

Fresh, blooming aerial part of *Galium aparine* L.

CHARACTERS

Macroscopic and microscopic characters described under identification tests A and B.

IDENTIFICATION

- A. Very spindly, herbaceous stem, with overturned hooks on its 4 angles, swollen, hairy at the nodes, rough by touch. Possible adventive roots at the nodes. Opposite leaves, linear-oblong or oblong, mucronated, forming a whorl of 6 to 8 pieces with their similarly shaped-stipules; on the adaxial surface, small hooks directed upward, whereas the margins present small hooks directed downward. Flowers bunched in small axillary cymes, pedunculated, outgrowing the leaves. Whitish or greenish gamopetalous corolla, with 4 spread lobes.
- B. Take a sample of epidermis from the leaf. Examine under a microscope, using *chloral hydrate solution R*. Abaxial epidermis of the lamina composed of lobe-outlined cells, stomata of paracytic type (2.8.3) and uni or bi-cellular covering trichomes with slightly bent tip. Possible presence of calcium oxalate raphides in the underlying spongy parenchyma. Lamina margin with stout unicellular covering trichomes, oriented towards the same direction, with a widely enlarged base in addition to 20 or so subsidiary cells and a very sharp hook at the tip.

TESTS

**Foreign matter** (2.8.2): maximum 5 per cent.

**Loss on drying** (2.2.32): minimum 75.0 per cent, determined on 5.0 g of finely-cut drug, by drying in an oven at 105 °C for 2 h.

**STOCK**

DEFINITION

Stickywilly mother tincture complies with the requirements of the general technique for the preparation of mother tinctures (see *Homoeopathic Preparations (1038)* and French

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

Pharmacopoeia Authority Supplement). The mother tincture is prepared with ethanol (45 per cent V/V), using fresh, blooming aerial part of *Galium aparine* L.

*Content:* minimum 0.01 per cent *m/m* of total hydroxycinnamic derivatives, expressed as caffeic acid (C<sub>9</sub>H<sub>8</sub>O<sub>4</sub>; *M<sub>r</sub>* 180.2).

## CHARACTERS

*Appearance:* brown liquid.

## IDENTIFICATION

Thin layer chromatography (2.2.27).

*Test solution.* Evaporate the ethanol of 5 mL of mother tincture. Add 5 mL of *water R* to the aqueous residue and extract with 3 quantities each of 10 mL of *methylene chloride R*. Dry the organic phases gathered on *anhydrous sodium sulfate R*, then evaporate under low pressure. Dissolve the residue in 0.5 mL of *ethanol (96 per cent) R*.

*Reference solution.* Dissolve 10 mg of *herniarine R* and 5 mg of *scopoletin R* in 40 mL of *ethanol (96 per cent) R*.

*Plate:* TLC silica gel plate *R*.

*Mobile phase:* acetone *R*, methylene chloride *R* (10:90 V/V).

*Application:* 20 µL, as bands.

*Development:* over a path of 10 cm.

*Drying:* in air.

*Detection:* 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	
Herniarine: a blue zone -----	-----
Scopoletin: a blue zone -----	A blue zone (scopoletin) -----
<b>Reference solution</b>	<b>Test solution</b>

## TESTS

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

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

#### ASSAY

*Ultraviolet and visible absorption spectrophotometry* (2.2.25).

*Mother solution.* In a 20.0 mL volumetric flask, place 10.00 g of mother tincture and dilute to 20.0 mL with *ethanol* (55 per cent V/V) R.

*Test solution.* In a 20.0 mL volumetric flask, successively place the following and shake after each addition: 2.0 mL of mother solution, 4.0 mL of *hydrochloric acid 0.5 M*, 4.0 mL of a solution prepared with the dilution of 10 g of *sodium nitrite R* and 10 g of *sodium molybdate R* in 100 mL of *water R*, 4.0 mL of *dilute sodium hydroxide solution R* and dilute to 20.0 mL with *water R*.

*Compensation liquid.* In a 20.0 mL volumetric flask, place the following and shake after each addition: 2.0 mL of mother tincture, 4.0 mL of *hydrochloric acid 0.5 M*, 4.0 mL of *dilute sodium hydroxide solution R* and dilute to 20.0 mL with *water R*.

Measure the absorbance of the test solution, immediately at 518 nm, in comparison with the compensation liquid.

Calculate the percentage content *m/m* of total hydroxycinnamic derivatives, expressed as caffeic acid, from the expression:

$$\frac{A \times 200}{m \times 300}$$

i.e: taking the specific absorbance of caffeic acid to be 300 at 518 nm.

*A* = absorbance of the test solution at 518 nm,  
*m* = mass of the mother tincture sample, in grams.

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