PELARGONIUM TRISTE RHIZOMA

Definition

Pelargonium Triste Rhizoma consists of the fresh or dried tuber of *Pelargonium triste* (L.) l’Hérit. (Geraniaceae).

Synonyms

*Pelargonium flavum* L. Ait.

Vernacular names

kaneelbol, naelblom (A)

Description

Macroscopical

Perennial geophyte with a large subterranean tuber and tuberous roots; leaves compound pinnate, hirsute to sparsely hairy, grey-green, 10-45 cm long × 4-15 cm wide, borne on long petioles in a basal summer-deciduous rosette; flowers (Aug–Feb) sweetly scented at night, borne on long hirsute peduncles in a pseudo umbel of 6-20 blooms; petals light yellow-green with purple centre; tuber conical-elongate, up to 20 cm in diameter with deeply fissured grey-brown corky bark, central core maroon red in transverse section when fresh, outer part cream-yellow.

Microscopical

The characteristic features are: the numerous ovoid starch grains, up to 30µ long, loose in the powdered drug or tightly packed in thin-walled parenchyma cells of the central stele (1+2); the abundant rosette aggregates of calcium oxalate, up to 90µ in diameter, loose in the powdered drug or in parenchyma cells of the stele (5); the tannin idioblasts with red-brown contents (5); the sclereids of the cortex (3); the cork cells of the outer bark (4).

Figure 1 – Live plant

Figure 2 – line drawing

Crude drug

Entire tubers with attached root, bright red-maroon in transverse section when fresh, with an agreeable clove-like odour and an astringent taste.

Geographical distribution

Confined to sandy flats and lower hill slopes of the Western Cape Province, from Namaqualand south to the Cape Peninsula and eastwards to Riversdale.

Quality standards

Identity tests

Thick layer chromatography on silica gel using as solvent a mixture of toluene:diethyl ether:1.75M acetic acid (1:1:1). Reference compound cineole (0.1% in chloroform). Method according to Appendix 2a. R\textsubscript{f} values of major compounds: 0.11 (pale grey-brown); 0.58 (pale grey-brown); 0.72 (grey); 0.90 (purple); cineole: 0.83 (blue-purple)

HPLC on C\textsubscript{18} column, method according to Appendix 2b.

Major compounds:

Methanol extract: (figure 6)
Retention times (mins): 2.68; 11.17; 11.62; 13.71; 15.59
Ethanol (70%) soluble extractive value:
not less than 18.0% (range; 18.55-22.39%)

Purity tests

Assay

Not yet available

Major chemical constituents

Figure 7 – chemical constituents

Preliminary microchemical tests in our laboratories indicated the presence of tannins and saponins but not of alkaloids, nor of cardiac, cyanogenic or anthraquinone glycosides. Coumarins e.g. 7-hydroxy-5, 6-dimethoxycoumarin (umckalin: figure 7), its 7-glucoside and scopoletin, have been identified as major constituents of root extracts of P. triste as well as of 11 other Pelargonium species².

(See Pelargonium betulinum for summary of genus secondary chemistry)

Dosage forms

Used almost exclusively in the form of an aqueous infusion, taken orally, used as a gargle or externally applied.

Medicinal use

Internal
For the treatment of diarrhoea and stomach upset.

External
For the treatment of haemorrhoids; as an antiseptic gargle for sore throat.

Pharmacology/bioactivity

Experimental support for the traditional uses of this species is lacking; however the presence of astringent tannins provides a rationale for its use as an antidiarrhoeal and for the treatment of haemorrhoids. Preliminary in vitro assays of aqueous extracts indicated no antimicrobial activity against Pseudomonas aeruginosa, Candida albicans or Mycobacterium smegmatis in the concentrations used. Some activity was recorded against Staphylococcus aureus.

Contraindications

Not suitable for the treatment of diarrhoea in infants or children under two years of age.

Adverse reactions

None recorded

Precautions

No special precautions

Dosage

One litre of boiling water is added to 3.5-7.0g (1-2 tablespoonsful) of dried ground material, infused until cold and strained. The infusion may be used as a gargle for sore throat, applied locally to relieve haemorrhoids or taken internally to treat diarrhoea, as follows:

Adults: Half a teacupful (90ml) two or three times daily.

Children 6-12 years: One quarter teacupful (45ml) two to three times daily.

Fluid intake (boiled cooled water to which has been added table salt and cane sugar)* should be increased. If diarrhoea persists or is accompanied by vomiting, or there is blood in the stools, additional or alternative therapy should be sought.

* Half a household teaspoonful of salt and eight teaspoonsful of sugar to one litre of water
