**Definition**

Gunnera Perpensa Rhizoma consists of the fresh or dried rhizome of *Gunnera perpensa* L. (Gunneraceae).

**Synonyms**

**Vernacular names**

Wilde ramenas, wilde kalbas, rivierpampoen (A), river pumpkin, qobo (S), ipuzi lomlambo (Xh), ughobo, ukenya (Z).

**Description**

**Macroscopical**

Rhizomatous thinly hairy perennial herb to 1m in height; *leaves* palmate, tufted, near apex of rhizome, round to reniform with dentate margin, 4-25 × 6-38 cm, on stout petioles 15-75cm long; *flowers* (Oct-Jan) male, female or bisexual, greenish, sessile, borne in spike-like racemes 2-10cm long; *rhizome* creeping, to 3cm thick, yellow-fleshy internally.

**Microscopical**

Characteristic features are: the light brown cork tissue of the outer bark (5); the thick-walled parenchyma and collenchyma with intercellular spaces (1), staining bright yellow-orange with phloroglucinol/HCl; the many reticulately thickened vessels up to 120µ in diameter (6); the groups of grey-brown cells of the cortex (4); the absence of starch and tanniniferous tissue; the calcium oxalate crystals of the central stele, up to 40µ in diameter (2).

**Crude drug**

Collected as required or obtained in the marketplace as fresh to semi-dry pieces of rhizome, up to 15cm long and 3cm in diameter, dark brown externally, cream to

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dark pink internally, texture hard to fleshy, odour faint.

**Geographical distribution**

Marshes, stream banks and permanent seeps of the Western and Eastern Cape Provinces, Free State Province, KwaZulu/Natal, Mpumalanga, Swaziland, Lesotho; also Zimbabwe, Malawi and East Tropical Africa.

![Figure 4: distribution map](image)

**Quality standards**

**Identity tests**

Thin 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.

Rf values of major compounds: 0.04 (pale lilac); 0.12 (pale lilac); 0.30 (grey-mauve); 0.36 (grey-mauve); 0.42 (grey-brown); 0.59 (light purple); cineole: 0.79 (blue-purple)

![Figure 5: TLC plate](image)

**HPLC on C18 column, method according to Appendix 2b.**

**Major compounds:**
Methanol extract:
Retention times (mins): 2.89; 4.35; 6.12; 11.31; 13.77; 21.08; 25.88

![Figure 6: HPLC spectrum](image)

**Ethanol (70%) soluble extractive value:** not less than 34.81% (range: 34.81-38.18%)

**Purity tests**

**Assay**

Not yet available

**Major chemical constituents**

Little is known of the chemistry of this species. The occurrence of a bitter principle, named celastrin, has been reported.

**Dosage forms**

Aqueous infusions and decoctions are taken orally but may also be applied externally as a lotion or wound dressing.

**Medicinal uses**

Root decoctions are used in traditional gynaecological practice as well as traditional veterinary practice to initiate labour, assist delivery or to expel the placenta. *Gunnera perpensa* rhizome is a common ingredient of *inembe* and *isihlambezo*, preparations used during the last trimester of pregnancy to ensure healthy foetal growth and easy
Decoctions are also taken orally to relieve dysuria, rheumatic pains and dyspepsia, as a stomachic, or for colds. Externally a decoction is used as a wound dressing. Infusions may be taken internally or applied externally to treat psoriasis.\textsuperscript{GR1}

**Pharmacology/bioactivity**

An aqueous decoction of *Gunnera perpensa* rhizome exhibited direct activity on isolated rat uterine smooth muscle but not on that of the ileum. Response to oxytocin-induced uterine contractions were potentiated by the extract\textsuperscript{3}. Abortifacient activity has been reported, but details are not available\textsuperscript{4}.

Water, hexane and 100% ethanol extracts of dried root, assessed for \textit{in vitro} antibacterial activity against \textit{Staphylococcus aureus}, \textit{Klebsiella pneumoniae}, \textit{Bacillus subtilis} and \textit{Escherichia coli}, were found to be inactive in the concentrations used\textsuperscript{5}.

**Contraindications**

To be established.

**Adverse reactions**

None reported but investigation necessary.

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