

# MELIANTHUS MAJOR FOLIA

## Definition

Melianthus Major Folia consists of the fresh or dried leaves of *Melianthus major* L. (Melianthaceae).

## Synonyms

## Vernacular names

kruidjie-roer-my-niet, krikiebos (A), ubuhlungubemamba (X)

## Description

### Macroscopical<sup>1</sup>



Figure 1 – Live plant

Flexible shrub reaching a height of 1.5m, entire plant giving off a foul odour when bruised; **leaves** up to 45cm long, glabrous, blue-green in colour, divided in the upper half to two-thirds into 2-6 pairs of opposite leaflets, 9-18 cm long × 5-7cm wide with coarsely toothed margin; **flowers** (Aug-Nov) in dense erect racemes, 30-38cm long, brownish-red, in whorls of 2-4; **fruit** a papery capsule 3-4 cm long containing many black shiny seeds, each 4,5 mm in diameter.

<sup>1</sup> Phillips, E.P. and Hofmeyr, J. (1927). The genus *Melianthus*. *Bothalia* 2: 351-355.



Figure 2 – line drawing

### Microscopical

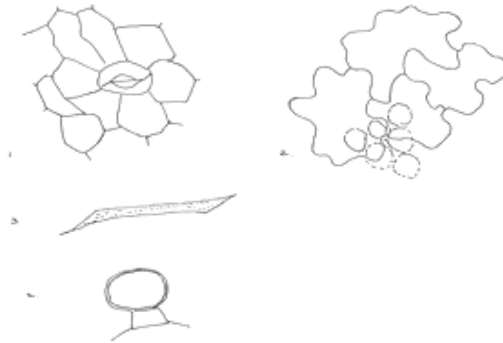


Figure 3 – microscopical features

Characteristic features are: the large epidermal cells of the upper leaf lamina, with sinuous walls and no stomata; the calcium oxalate styloids of the leaf mesophyll, up to 400microns long; the occasional glandular hairs of the leaf margin, with unicellular stalk and unicellular head.

1. Cells of lower leaf epidermis with anomocytic stomata
2. Cells of upper leaf epidermis with sinuous walls

3. Calcium oxalate styloid from leaf mesophyll
4. Glandular hair of leaf margin

### Crude drug

Collected as required or found in the marketplace, usually as fresh leaf; colour blue green, texture smooth and pliable, odour characteristic unpleasant.

### Geographical distribution



Figure 4 – distribution map

Occurs in fynbos and karroo vegetation, in the Western and Eastern Cape Provinces, from Vanrhynsdorp south to the Cape Peninsula and eastwards to Port Elizabeth.

### Quality standards

#### Identity tests

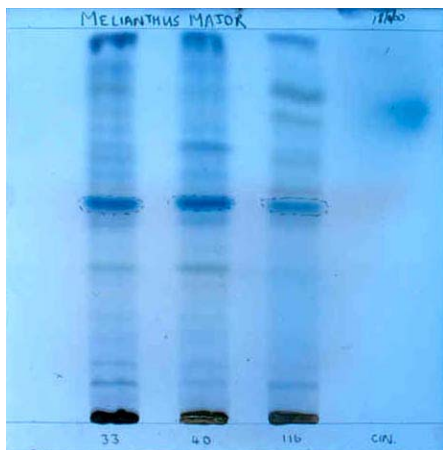


Figure 5 – TLC plate

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.

R<sub>f</sub> values of major compounds: 0,56 (purple); cineole: 0,82 (blue-purple)

HPLC on C<sub>18</sub> column, method according to Appendix 2b.

#### Major compounds:

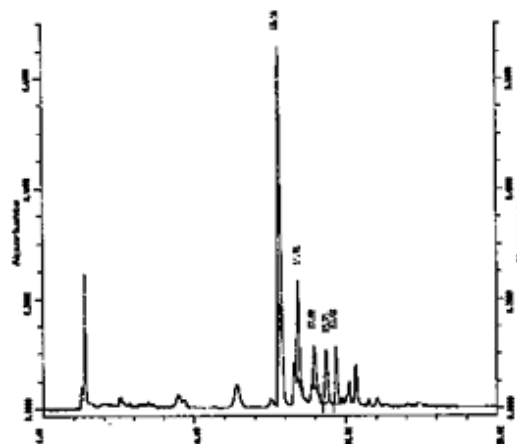


Figure 6 – HPLC spectrum

Methanol extract: (Figure. 6)  
Retention times (mins): 15.66; 16.91; 17.99; 18.76; 19.43

**Ethanol (70%) soluble extractive value:**  
not less than 28,0% (range: 28.84-41.37%)

#### Purity tests

#### Assay

Not yet available

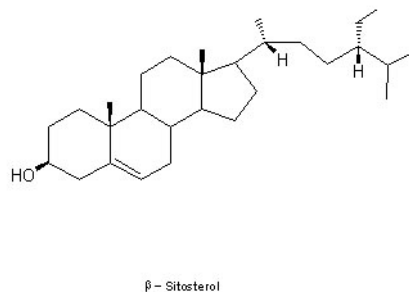


Figure 7 – chemical constituents

## Major chemical constituents

Microchemical tests in our laboratories indicated the presence of tannins and saponins but not of alkaloids nor of cardiac, cyanogenic or anthraquinone glycosides. A phytochemical analysis of the aerial parts of *Melianthus major* plants cultivated in India demonstrated the presence of the triterpenes cyclolaudenol, oleanolic acid, ursolic acid and quercetaroic-30-caffeate and the phytosterols  $\beta$ -sitosterol and daucosterol<sup>2</sup>.

## Dosage forms

Preparations of this species are rarely used for other than external application, oral toxicity being almost universally acknowledged among traditional practitioners. A leaf infusion or paste is applied to the affected area as a lotion or dressing; a leaf decoction is used as a mouthwash or gargle and leaves may be placed in the bath as a hot soak.

## Medicinal uses

Warm aqueous leaf infusions may be applied as a lotion to sores, ulcers or wounds that are slow to heal, including venereal sores; similar infusions may be used as a gargle or mouthwash for oral ulcers, disease of the gums or sore throat. Ringworm of the scalp is said to have been successfully treated with this herb. A leaf paste may be applied as a local dressing to the affected area. *Melianthus major* is often used in combination with *Lobostemon fruticosus* and *Galenia africana* in traditional practice.

## Pharmacology/bioactivity

*In vitro* antimicrobial activity of aqueous leaf extracts of *Melianthus major* was observed against *Candida albicans*, *Staphylococcus aureus* and *Mycobacterium smegmatis*, in the concentrations used for disc assays in our laboratories. No activity was demonstrated against *Pseudomonas aeruginosa*.

## Contraindications

None recorded. The use of preparations of this herb is nevertheless not recommended for children under six years.

## Adverse reactions

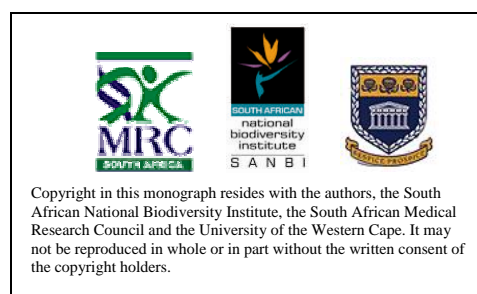
None reported in association with external use. Should irritation of the skin or mucous membrane occur, treatment should be discontinued.

## Precautions

The internal use of preparations of *Melianthus major* is not recommended. Allied species have been shown to contain cardiac glycosides (see *Melianthus comosus*) and animal studies confirm the oral toxicity of *M. major* (see general references 1).

## Dosage

Dried (10-20g) or fresh (20g-40g) leaf is mixed with one litre of boiling water in a closed vessel and allowed to stand until the resultant infusion can be applied to the skin or oral mucosa without discomfort. Strain before use. If a dressing is required, a paste may be prepared from fresh leaf softened in a little vegetable oil with the aid of gentle heat. Apply to the affected area on clean lint or gauze.



<sup>2</sup> Agarwal, J.S. and Rastogi, R.P. (1976). *Phytochemistry* **15**: 430-431.