**ASCLEPIAS FRUTICOSA HERBA**

**Definition**

Asclepias Fruticosa Herba consists of the fresh or dried leaves and smaller stems of *Asclepias fruticosa* L. (Asclepiadaceae).

**Synonyms**

Vernacular names

Tontelbos, melkbos (A), ulusinga lwesalukazi (Z), lebeyana, modimolo (S)

**Description**

**Macroscopical**

![Figure 1: Live plant.](image)

Erect perennial, multi-stemmed laticiferous shrub 1-3m in height; **leaves** erect, entire, opposite, linear-lanceolate, glabrous to very finely pubescent, 5-15 × 0.4-2 cm, with revolute margin; **flowers** (Oct-Dec) borne in simple 6-10 flowered umbels, each flower on a pedicel 1.2-2cm long, cream-white with green-purple corona; **fruit** an inflated bristly green follicle 5-7.5 cm long, tapering to a beak, containing numerous black seeds bearing long silky hairs.

**Microscopical**

![Figure 3: microscopical features](image)

Characteristic features are: the paracytic stomata and cells of the upper leaf epidermis with striated, puckered cuticle and papillae bearing clothing hairs(1), the latter multicellular, uniseriate, thin-walled, warty and with one cell characteristically shrunken (3); the numerous cluster crystals of calcium oxalate, ±20µ in diameter, in cells of the leaf mesophyll (5), the polygonal cells of the lower leaf epidermis (2), the absence of lignified tissue.

**Crude drug**

Collected as required or available in the marketplace as bundles of leaves and smaller stems; colour light yellow-green, odour faint, taste bitter; if fresh all parts exude white latex from the cut surface.

**Geographical distribution**

![Figure 4: distribution map](image)

Widespread distribution in all provinces of South Africa; also Lesotho, Swaziland,
Namibia and Botswana, in flat sandy areas, dry river beds and on roadsides.

**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. 

R_f values of major compounds: 0.32 (light green); 0.40 (grey); 0.47 (grey-brown); 0.59 (purple); 0.63 (brown); 0.87 (purple); cineole: 0.75 (blue-purple)

![Figure 5: TLC plate.](image)

HPLC on C18 column, method according to Appendix 2b. (figure 6)

**Major compounds:**

Methanol extract: Retention times (mins): 6.43; 7.12

![Figure 6: HPLC spectrum](image)

Ethanol (70%) soluble extractive value: not less than 23% (range; 23.40-28.67%)

**Purity tests**

**Assay**

Not yet available

**Major chemical constituents**

![Figure 7: chemical constituents](image)

Whole plant extracts of this species have been shown to contain a number of glycosides of the cardenolide and pregnane type\(^2\), e.g. 17β-hydroxygomphoside. The sugar moiety includes unusual monosaccharides e.g. digitoxose, olivose, cymarose, oleandrose and deoxyallose, some of which are esterified with cinnamic acids e.g. sinapic acid.

**Dosage forms**

Aqueous leaf infusions are taken orally or used as an enema and dried ground leaf is taken as a snuff.

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Medicinal uses

A leaf infusion, taken by mouth, is used to treat intestinal troubles (diarrhoea and stomach pain) in children and, given per rectum, as a purgative. Dried powdered leaf is inhaled as a snuff for the relief of headache, coryza and tuberculosis.

Pharmacology/bioactivity

Uterine stimulant effects have been reported for the dried wood of *Asclepias fruticosa*\(^7\). Extracts have shown cardiotonic and antihypertensive \(^6\), but not decongestant nor analgesic activity \(^8\).

Water, hexane and 100% ethanol extracts of dried leaf, assessed for *in vitro* antibacterial activity against *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Bacillus subtilis* and *Escherichia coli*, were found to be inactive in the concentrations used \(^9\).

Contraindications

See precautions

Adverse reactions

None are reported for this species as used traditionally. However, the toxicity of cardiac glycosides is well-documented. See precautions

Precautions

In view of the possibility of cardiac, uterotonic and antihypertensive activity, preparations of this species should be used with caution, on prescription from a competent traditional practitioner.

Dosage

To be determined

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