

LEONOTIS OCYMIFOLIA HERBA

Definition

Leonotis Ocymifolia Herba consists of the leaves and smaller stems of *Leonotis ocymifolia* (Burm. f.) Iwarsson (Lamiaceae).

Synonyms

Phlomis ocymifolia Burm. f.

Vernacular names

Klipdagga (A), lion's ear, umcwili (Z)

Description¹

Note: Three varieties of *Leonotis ocymifolia* are currently recognised. Only variety *ocymifolia* is considered here.

Macroscopical



Figure 1 – Live plant

Slender shrub 1-3 m high, branching from a thick woody base, internodes 30-50mm long, nodes prominent; stems square in cross section, hollow, deeply furrowed; **leaves** petiolate, 9-45 x 6-30mm, broadly ovate with crenate margin, upper surface smooth to pubescent, lower surface silvery

pubescent; **flowers** (Sept-Mar) borne in crowded spherical many-flowered verticils, at intervals of 35-105mm along the stem, corolla velvety orange, 26-37mm long; calyx toothed with prominent upper tooth; fresh pollen orange in colour.



Figure 2 – line drawing

Microscopical

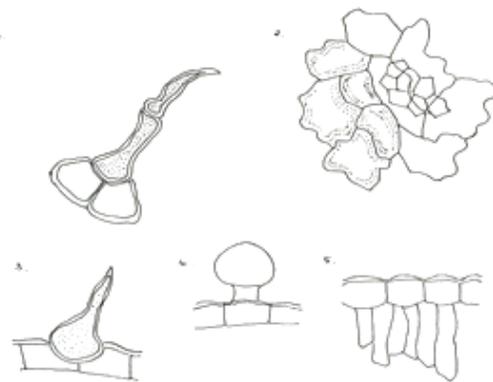


Figure 3 – microscopical features

Characteristic features are: the clothing hairs of stem and leaf lamina, very numerous on the lower leaf surface, mainly 2-celled, warty, up to 160 microns in length, thin-walled, curved; the glandular hairs of

¹ Iwarsson, M. (1985). The genus *Leonotis*. *Flora of Southern Africa* **28(4)**: 31-37.

leaf and stem, with short unicellular stalk and multicellular head up to 60microns in diameter, visible at 7.5x magnification as almost sessile glands, shiny in the fresh leaf; the epidermal cells of the leaf lamina with sinuous walls and diacytic stomata; the absence of calcium oxalate crystals; the occasional orange pollen grains and orange clothing hairs of the corolla.

1. Thin-walled, curved clothing hair of stem and leaf lamina, 2-celled, warty, up to 160µ long
2. Epidermal cells of leaf lamina with sinuous walls and striated cuticle
3. Clothing hair
4. Glandular hair of leaf/stem, with unicellular stalk and multicellular head up to 60µ in diameter
5. Leaf lamina (T/S)

Crude drug

Collected as needed or available in the marketplace as bundles of fresh or dried material comprising mainly leaves and smaller stems, with occasional flowers/fruits. Colour bright green when fresh, texture soft, odour characteristic aromatic.

Geographical distribution

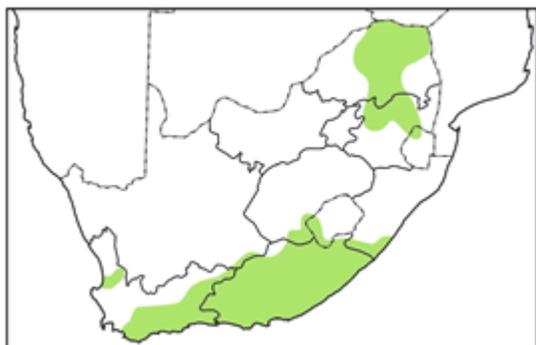


Figure 4 – distribution map

Widespread in south-eastern and eastern Africa, northwards to Kenya. Found on rocky outcrops and in well-drained soils on hillsides at altitudes of 1000-2000m in the Gauteng/Mpumalanga region, but descending to sea level in the Eastern and Western Cape Province.

Quality standards

Identity tests

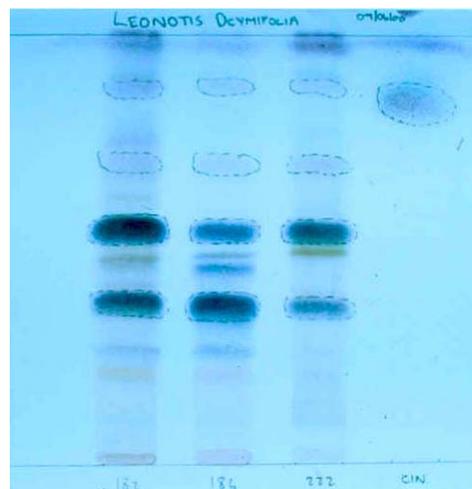


Figure 5 – TLC plate

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_f values of major compounds: 0.37 (purple); 0.55 (purple); 0.70 (red-brown); 0.88 (lavender); cineole: 0.85 (blue-purple).

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

Major compounds:

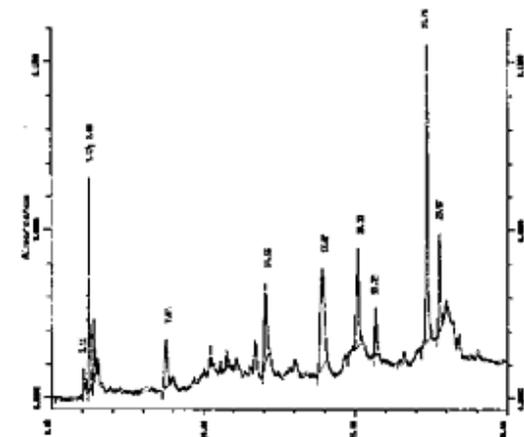
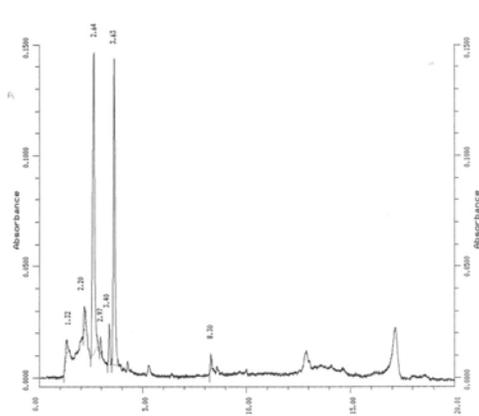


Figure 6 a – MeOH HPLC spectrum

Methanol extract: (Figure 6a)
Retention times (mins): 2,47; 7,56



DCM extract: (Figure 6b)
Retention times (mins): 2,64; 3,40

Ethanol (70%) soluble extractive value:
not less than 28.0% (range 24.23 – 28.37%)

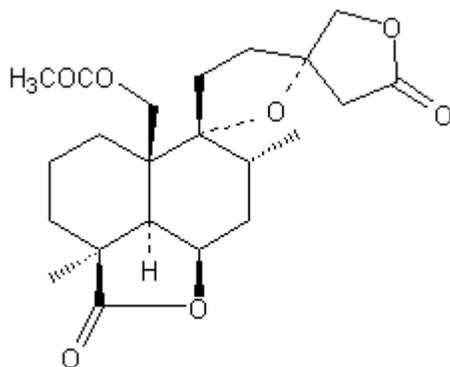
Essential oil content: 0,33% (range 0,33 – 0,66%)

Purity tests

Assay

Not yet available

Major chemical constituents



Leonitin

Figure 7 – chemical constituents

Microchemical tests in our laboratories indicated the presence of alkaloids, saponins and tannins but not cardiac or anthraquinone glycosides. The alkaloids were not of the indole or tropane type. Little is known of the secondary chemistry of this species (see *Leonotis leonurus*). Analysis of Ethiopian collections of leaves of *L. ocymifolia* var. *raineriana* revealed the

presence of labdane type diterpene lactones e.g. leonitin (figure 7).²

Dosage forms

Used mainly as an aqueous infusion or decoction, taken orally or applied externally.

Medicinal uses

This species is used more or less interchangeably with *L. leonurus* in some areas, but specific uses include the treatment of diabetes, hypertension, anaemia, eczema and other skin irritations. It is also utilised as a purgative and emmenagogue.

Pharmacology/bioactivity

Little is known of the bioactivity of this species.

Contraindications

In view of its reputation as an emmenagogue, the use of this herb during pregnancy is not recommended.

Adverse reactions

None known

Precautions

No special precautions

Dosage

To be determined



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² Habtemariam, S., Gray, A.I. and Waterman, P.G. (1994). Diterpenes from the leaves of *Leonotis ocymifolia* var. *raineriana*. *Journal of Natural Products* **57(11)**: 1570-1574.