

# LEYSERA GNAPHALODES HERBA

## Definition

Leysera Gnaphalodes Herba consists of the fresh or dried leaves and stems of *Leysera gnaphalodes* (L.) L. (Asteraceae).

## Synonyms

*Asteropterus dinteri* Rothm.  
*A. gnaphalodes* (L.) Rothm.  
*A. gracilis* Rothm.  
*A. incanus* Rothm.  
*Callisia gnaphalodes* L.  
*Leysera incana* Thunb.  
*L. tenuifolia* Salisb.

## Vernacular names

Teringtee, hongertee, geelblommetjies, skilpadteebossie (A)

## Description

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



Figure 1 – Live plant

Low spreading shrublet to 400mm; **leaves** alternate, entire, threadlike, up to 20 mm long, covered with fine silvery hairs; **flowers** (Sept-Nov) yellow, borne in solitary heads up to 25mm in diameter, on slender wiry peduncles at the ends of branches; disc florets bisexual, ray florets female; inflorescence subtended by several rows of dry involucral bracts; pappus bristles plumose.

<sup>1</sup> Bremer, K. (1978). A revision of the genus *Leysera* L. *Botaniska Notiser* **131**: 369.



Figure 2 – line drawing

### Microscopical



Figure 3 – microscopical features

Characteristic features are:

The numerous glandular hairs of leaf and stem, visible as shiny stalked glands under low magnification, with biseriate stalks up to 600 $\mu$  long and uni- to multicellular heads up to 150 $\mu$  in diameter, filled with yellow brown contents (1); the abundant unicellular

clothing hairs; the absence of calcium oxalate; the elongated cells of the bract margin with striated cuticle (3); the occasional yellow-brown pollen grains  $\pm 75\mu$  in diameter (2); the epidermal cells of the tubular floret corolla with sinuous walls (4); the cells of the leaf epidermis, with sinuous walls and anomocytic stomata (5).

### Crude drug

Gathered fresh as required or available in the marketplace as bundles of softly hairy aromatic grey leafy twigs, with occasional flowers.

### Geographical distribution

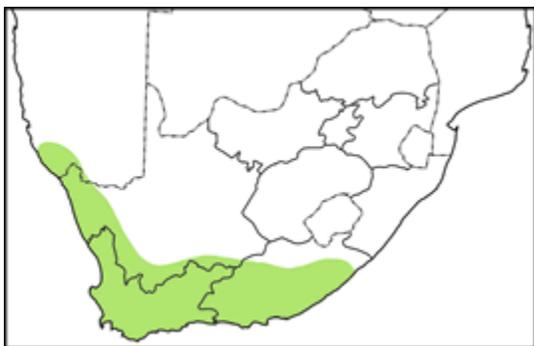


Figure 4 – distribution map

Sandy and stony flats and slopes of the Western Cape Province northwards into southern Namibia and eastwards as far as Uniondale.

### 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. (figure 5)  $R_f$  values of major compounds: 0.37 (grey-green); 0.40 (purple-grey); 0.45 (purple); 0.60 (mauve); 0.80 (pale green); cineole marker: 0.79 (blue-purple)

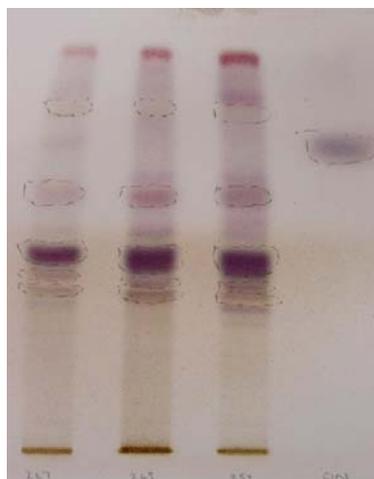


Figure 5 – TLC plate

HPLC on  $C_{18}$  column, method according to Appendix 2b.

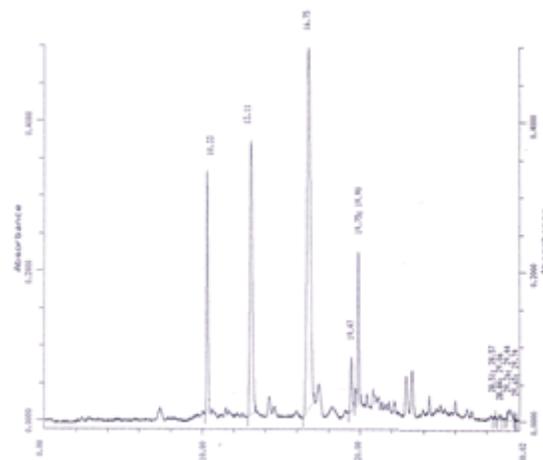


Figure 6 – MeOH HPLC spectrum

#### Major compounds:

Methanol extract:

Retention times (mins): 10.33; 13.11; 16.5; 19.90

#### Ethanol (70%) soluble extractive value:

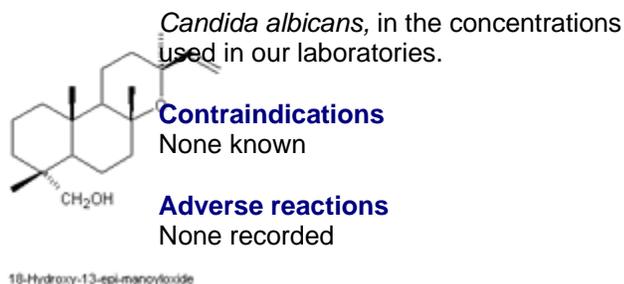
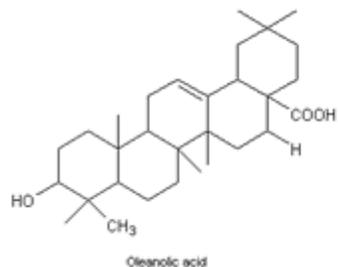
not less than 22.0% (range: 21.95-28.11%)

#### Purity tests

#### Assay

Not yet available

#### Major chemical constituents



*Candida albicans*, in the concentrations used in our laboratories.

#### Contraindications

None known

#### Adverse reactions

None recorded

#### Precautions

No special precautions

#### Dosage

To be determined

Figure 7 – chemical constituents

The roots of *Leysera gnaphalodes* contain triterpenes and benzofuran derivatives<sup>2</sup> while the aerial parts have yielded, in addition to triterpenes e.g. oleanolic acid, diterpenes as well as labdane and kaurene derivatives.<sup>3</sup> (figure 7)

Microchemical tests in our laboratories indicated the presence of alkaloids and tannins but not of saponins nor of cardiac or cyanogenic glycosides.

#### Dosage forms

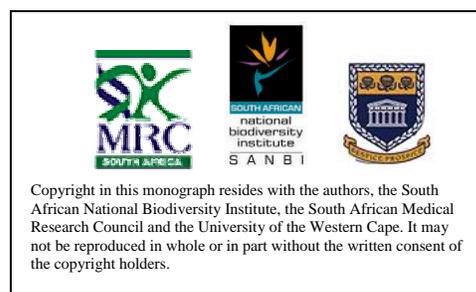
An aqueous infusion is taken orally.

#### Medicinal uses

The use of this herb is directed almost exclusively to the treatment of respiratory problems e.g. asthma, bronchitis, tuberculosis and influenza. It was at one time considered by the medical profession at the Cape to be very effective for this purpose and preparations were commonly dispensed by apothecaries<sup>4</sup>. In the Montagu district it is used also for stomach ailments.<sup>5</sup>

#### Pharmacology/bioactivity

There appears to be little published information available at present. Preliminary *in vitro* assays did not suggest antimicrobial activity of aqueous extracts against *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Mycobacterium smegmatis* or



<sup>2</sup> Bohlmann, F. and Zdero, C. (1972). Leyserral-angelicat, ein neuartiges benzofuran-derivat. *Chemische Berichte* **105**: 2534-2538.

<sup>3</sup> Tschirtzis, F. and Jakupovic, J. (1991). Diterpenes from *Leysera gnaphaloides*. *Phytochemistry* **30(1)**: 211-213.

<sup>4</sup> GR 19

<sup>5</sup> GR 20