

HELICHRYSUM PATULUM HERBA

Definition

Helichrysum Patulum Herba consists of the fresh or dried leaves and smaller stems of *Helichrysum patulum* (L.) D. Don (Asteraceae).

Synonyms

Gnaphalium patulum L.
H. crispum (L.) D. Don var. *citrinum* Harv.
H. crispum auct. non (L.) D. Don

Vernacular names

kooigoed, imphepho (Xh), phefu (S),

Description

Macroscopical¹



Figure 1 – Live plant

Sprawling semi-woody, much-branched perennial subshrub 300-700 mm in height; **leaves** alternate, entire, 6-20 × 2-12 mm, panduriform, with obtuse apex and crisped-undulate margin, abruptly contracted about the middle, covered in dense grey-white woolly hairs, more numerous on the underside; **flowers** (Oct – Feb) pale yellow,

white or light pink, in homogamous heads of 14-30 individuals, 4-5mm in diameter, arranged in dense corymbose clusters; involucre bracts concave obtuse.

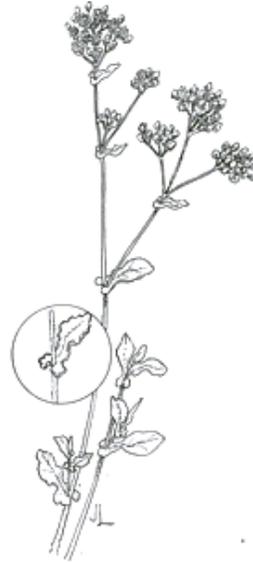


Figure 2 – line drawing

Microscopical

Characteristic features are: the very numerous clothing hairs; the occasional yellow-brown pollen grains up to 120µ in diameter; the polygonal cells of the upper epidermis with anisocytic stomata, cicatrices and underlying palisade layer, each palisade cell containing a calcium oxalate prism ±15µ long; the fairly numerous yellow-brown glandular trichomes with unicellular stalk and head of up to 12 cells, about 50µ in diameter.

1. Yellow-brown pollen grains up to 120µ in diameter.
2. Yellow-brown glandular trichomes with unicellular stalk and up to 12-celled head ±50µ in diameter.
3. T/S of leaf showing multicellular uniseriate clothing hairs.
4. Polygonal cells of the upper epidermis with anomocytic stomata, cicatrices and underlying palisade layer, each palisade cell containing a calcium oxalate prism ±15µ long.
5. Cells of the lower leaf epidermis with sinuous walls.

¹ Hilliard, O. (1983). Flora of Southern Africa 33, 7, 2: 199.

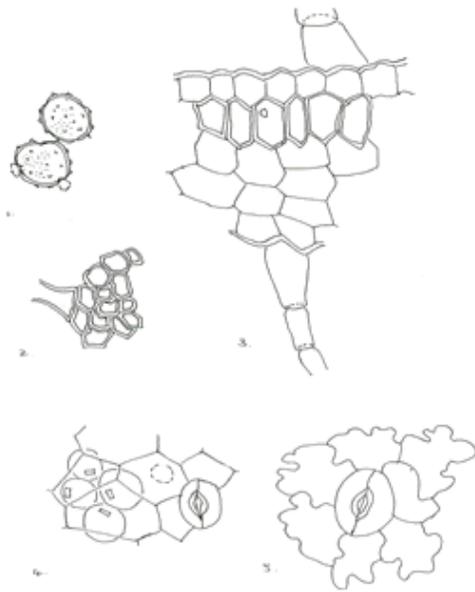


Figure 3 – microscopical features

Crude drug

Collected as required or available in the marketplace as bundles of fresh or semi-dry leafy stems, sometimes with flowers/fruits. The foliage is soft grey-felted and pleasantly aromatic.

Geographical distribution



Figure 4 – distribution map

Coastal dune bush and south-facing lower mountain slopes of the Western Cape Province, from the Cape Peninsula and Paarl to Bredasdorp and Mossel Bay.

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: 0.31 (yellow); 0.47 (yellow); 0.62 (grey); cineole 0.83 (blue-purple)

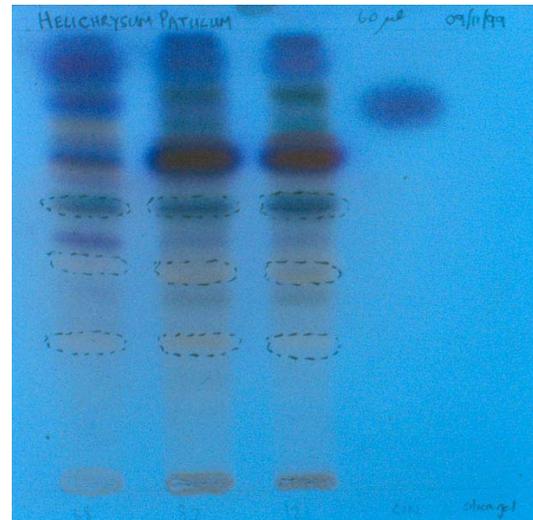


Figure 5 – TLC Plate

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

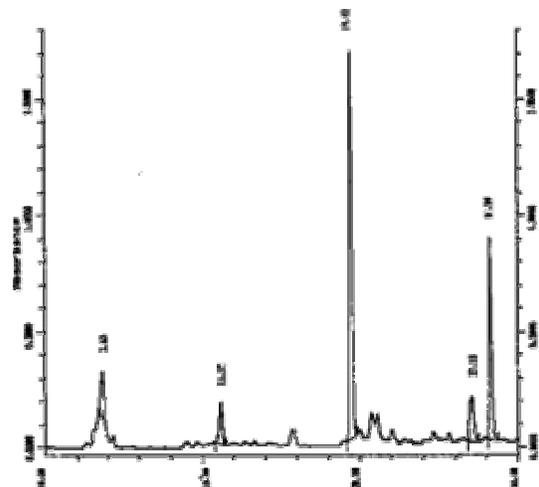


Figure 6 a – MeOH HPLC spectrum

Major compounds:

Methanol extract: (figure 6a)
Retention times (mins): 3.63; 11.18; 19.42; 27.15; 28.29

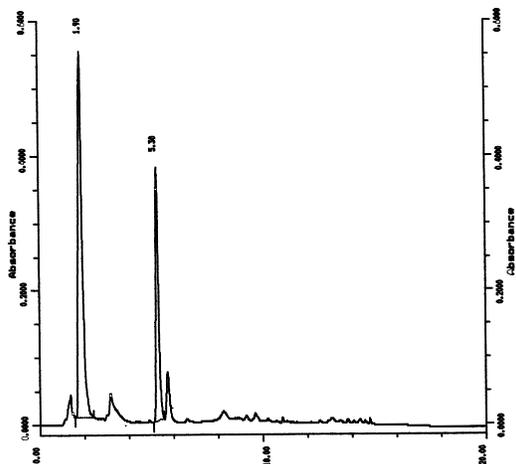


Figure 6 b – DCM HPLC spectrum

DCM extract: (figure 6b)
Retention times (mins): 1.94 ; 5,24

Ethanol (70%) soluble extractive value:
not less than 28.5% (range: 28.88-36.35%)

Purity tests

Assay

Not yet available

Major chemical constituents

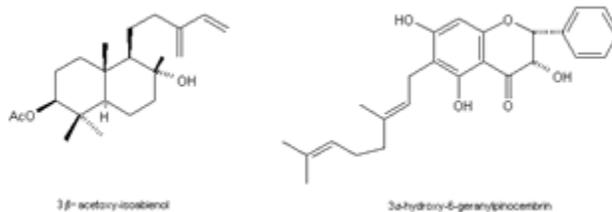


Figure 7 – chemical constituents

Of the ±260 *Helichrysum* species known to occur in South Africa, some 30 have been the subject of detailed chemical studies². In addition to more widespread groups of secondary metabolites such as flavonoids (see figure 7) and diterpenes, acylphloroglucinol and α-pyrone derivatives appear to be common in the genus and

² Jakupovic, J., Kuhnke, J., Schuster, A., Metwally, M.A. and Bohlmann, F. (1986). Phloroglucinol derivatives and other constituents from South African *Helichrysum* species. *Phytochemistry* **25**(5): 1133-1142. See also refs. cited therein.

some unusual acetylenic compounds have been isolated. Sesquiterpenes such as labdane derivatives (see figure 7) are also found. The secondary chemistry of *H. patulum* has not been investigated. Microchemical tests in our laboratories indicated the presence in this species of tannins but not of alkaloids, saponins, nor of cardiac, cyanogenic or anthraquinone glycosides.

Dosage forms

An aqueous infusion is taken orally.

Medicinal uses

The results of several recent surveys indicate that *H. patulum* (often incorrectly named *H. crispum*) is used to treat a variety of ailments including asthma, bladder infections, gynaecological disorders, backache, *angina pectoris* and other cardiac problems, fatigue, stress, hypertension and influenza.^{3 4 5 6 7} See also GR 1 and 20.

Pharmacology/bioactivity

In vitro antimicrobial activity against *Staphylococcus aureus* was demonstrated by aqueous extracts prepared from dried leaf material, at a concentration of 10mg/ml. No activity against *Pseudomonas aeruginosa*, *Candida albicans* or *Mycobacterium smegmatis* was shown by

³ Dison, A. (1990). An introductory socio-botanical survey of the medicinal plants of the greater metropolitan centre of Cape Town. Unpublished Honours thesis, Department of Botany, University of Cape Town.

⁴ Moerat, A. (1993). A survey of the medicinal plants used by Rastafarians and Traditional Practitioners in the south Western Cape Province. Unpublished Masters thesis, Department of Botany, University of the Western Cape.

⁵ Green, C. M. (1991). A survey of the medicinal plants in the Stellenbosch region. Unpublished Honours thesis, Department of Botany, University of Stellenbosch.

⁶ Lieberman, D. (1990). Traditional plant utilisation in the Western Cape. Unpublished undergraduate study, Department of Botany, University of Cape Town.

any of the extracts used in preliminary assays. No other information is available regarding the bioactivity of this species.

Contraindications

None known.

Adverse reactions

None known.

Precautions

Aside from general caution regarding the medicinal use of species in Asteraceae by allergic individuals, there does not at present seem to be any need for concern in respect of safety.

Dosage

To be determined.

