

LOBOSTEMON FRUTICOSUS HERBA

Definition

Lobostemon Fruticosus Herba consists of the fresh or dried leaves and smaller stems of *Lobostemon fruticosus* (L.) Buek (Boraginaceae).

Synonyms

Echium fruticosum L.
Echium obovatum (DC.) I. M. Johnston
Lobostemon lasiophyllus DC.

Vernacular names

Agdaegeneesbos, douwurmbos (A.)

Description¹

Macroscopical



Figure 1 – Live plant

Shrub to 1m in height with densely hairy branches; **leaves** glaucous, entire, obovate, with prominent midrib on the lower surface, 15-60mm long x 5-12mm wide, densely covered on both surfaces with adpressed hairs, giving the foliage a silvery appearance; **flowers** (Aug-Oct) up to 25mm long, funnel-shaped, blue, pink or rarely white, often varying in colour on the same plant (a feature of Boraginaceae), borne in cymose inflorescences; bracts and sepals similar to the leaves in texture and hairiness; **fruit** a nutlet with 3 longitudinal ridges.

¹ Levyns, M. R. (1934). A revision of *Lobostemon* Lehm. and a discussion of the species problem. *Journal of the Linnean Society of Botany* **49**: 393-445.



Figure 2 – line drawing

Microscopical

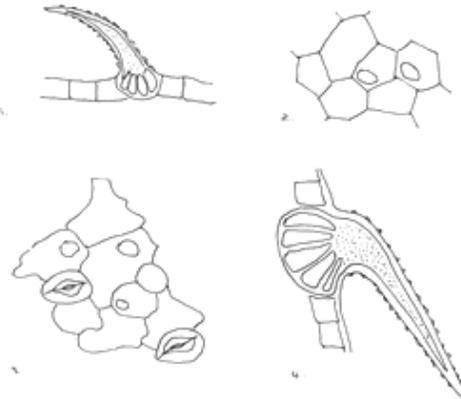


Figure 3 – microscopical features

Characteristic features are: the numerous stiff adpressed unicellular clothing hairs of leaf and stem, up to 800 μ in length, thick walled, warty, tapering from a bulbous base to an acute apex, more numerous on the upper leaf surface and along leaf margin (1+4); the irregularly-shaped cells of the epidermis, with anomocytic stomata and bearing numerous cicatrices (2+3). Calcium oxalate absent.

Crude drug

Infrequently seen in the market place; most commonly gathered as required. The leaves

have a blue-green colour and a rough-leathery, slightly succulent texture, with no perceptible odour.

Geographical distribution

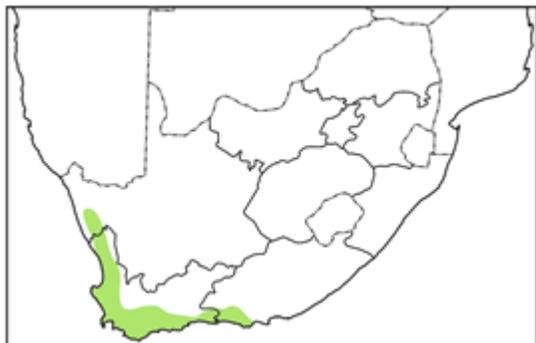


Figure 4 – distribution map

Almost confined to the Western Cape Province, on sandy slopes and flats from Namaqualand to 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. R_f values of major compounds: 0.51 (grey-purple); 0.58 (grey-purple); 0.65 (leaf green); 0.72 (sage green); cineole: 0.83 (blue-grey)

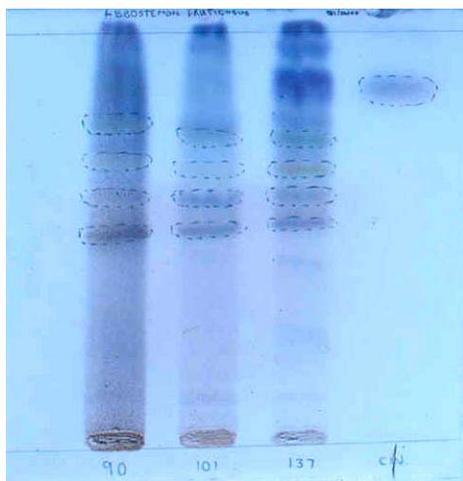


Figure 5 – TLC plate

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

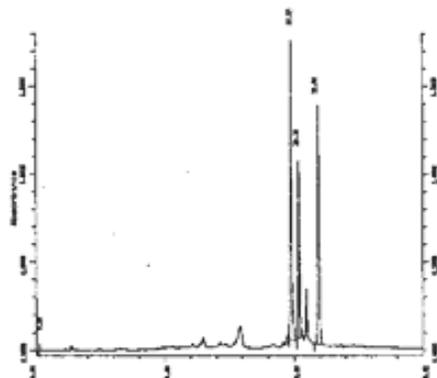


Figure 6 a – MeOH HPLC spectrum

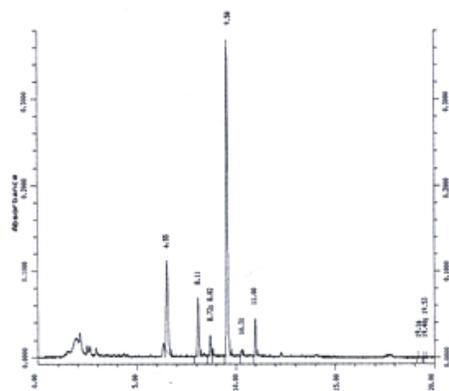


Figure 6 b – DCM HPLC spectrum

Major compounds:

Methanol extract: (figure 6a)

Retention times (mins): 19.78; 20.40; 21.91

DCM extract: (figure 6b)

Retention times (mins): 6.55; 8.11; 8.72; 9.58; 10.31; 11.00

Ethanol (70%) soluble extractive value:

not less than 14% (range variable: 13.92-25.43%)

Purity tests

Assay

Not yet available

Major chemical constituents

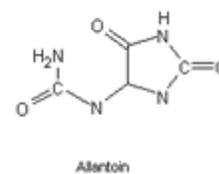
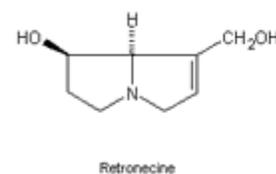


Figure 7 – chemical constituents

Little is known of the chemistry of this species, or of others in this South African endemic genus. The family is characterised by the presence of naphthoquinone derivatives, pyrrolizidine alkaloids, cyclitols, phenolic acids, tannins and the ureide allantoin² (figure 7), the latter compound being particularly abundant in the root of comfrey, (*Symphytum officinale*). Chemical tests in our laboratories indicated the presence in *Lobostemon fruticosus* of tannins, saponins and reducing sugars, but not of alkaloids nor of cardiac or cyanogenic glycosides. Polysaccharides appear to be present, as aqueous infusions are very viscous and set to a gel if in sufficient concentration.

Dosage forms

Fresh material, sweated in a pan with vegetable oil or butter, is applied to the skin as a dressing or ointment. An aqueous infusion is taken orally.

Medicinal uses

Preparations of this herb, either alone or in combination with *Melianthus major*, *M. comosus* and *Galenia africana*, are commonly applied externally to treat wounds, sores, ringworm, erysipelas, eczema or other dermatological disorders³. Aqueous infusions are recorded as being taken orally to treat gynaecological complaints.

Several species in the family, namely hound's tongue (*Cynoglossum officinale*), borage (*Borago officinale*) and lungwort (*Pulmonaria officinale*), were formerly official in various pharmacopoeias and used mainly as emollients or demulcents.

Pharmacology/bioactivity

The results of assays for antimicrobial activity carried out in our laboratories did not suggest *in vitro* activity against *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Candida albicans* or *Mycobacterium smegmatis*. No other scientific studies of the bioactivity of this herb appear to have been made.

² GR 9

³ GR 1, 20, 22, 24.

Contraindications

There are no reports of contraindications to the external use of this herb.

Adverse reactions

Although preliminary chemical tests do not indicate the presence of alkaloids in *L. fruticosus*, the occurrence of hepatotoxic pyrrolizidine alkaloids in some genera of the family suggests that oral preparations of this herb should be used with caution and for a limited period only (no more than two weeks). Prolonged oral use of comfrey and other pyrrolizidine containing herbal medicines e.g. coltsfoot, has been discouraged because of the cumulative nature of these toxins.

Precautions

No special precautions

Dosage

To be determined.

