ALEPIDEA AMATYMBICA RHIZOMA

Definition
Alepidea Amatymbica Rhizoma consists of the fresh or dried rhizome and root of Alepidea amatymbica Eckl. & Zeyh. (Apiaceae).

Synonyms

Vernacular names
Kalmoes (A); ikhathazo (Z); lesooko (S), iqwili (Xh)

Description

Macroscopical
Erect robust perennial herb to 2m in height with hollow grooved stems and a rhizomatous rootstock; leaves mostly basal on petioles up to 200mm long, with a few stalkless clasping stem leaves; glossy green on upper surface with prominent venation on lower surface; lamina lanceolate to cordate; 300 - 100 × 20 - 75mm, with dentate margin, each tooth terminating in a long bristle; flowers (Jan-Mar) white, borne in heads 10 - 20mm in diameter, arranged in panicles; each head with 5 unequal involucral bracts, the latter white to pale yellow above, olive green on lower surface.

Three varieties have been distinguished on the basis of leaf shape and involucral segment size:
var. amatymbica
var. microbracteata Weim.: differs from var. amatymbica in its shorter involucral segments (5mm long as opposed to 10mm in the typical variety)
var. aquatica (Kuntze) Weim.: differs from var. amatymbica in its longer, narrower leaves (up to 400mm long and 30-40mm wide)²

Microscopical
Characteristic features are: the abundant golden brown to red brown cork cells (2), the yellow oleoresin canals (3), 250-300µ in diameter, in two concentric rings accompanying the vascular tissue; the numerous sclereids, up to 220µ in diameter, with narrow lumen (5+6); small starch granules each 20-30µ in diameter in the cortical collenchyma (1) and parenchyma of the central stele; the reticulate and spirally thickened vessels, 70-120µ in diameter, with lignified walls; the calcium oxalate rosette aggregates, each up to 160µ in diameter (7), in cells of the parenchyma surrounding the

vascular tissue and oleoresin ducts, forming an incomplete crystal sheath (4).  

**Crude drug**  
The fresh rhizome is russet-brown externally with adhering roots; the cut surface shows two rings of oleoresin ducts in a matrix of pale yellow ground tissue; odour pleasant aromatic, texture crisp resinous when fresh; fracture sharp when dry.  

**Geographical distribution**  
Locally common in grassland of the northern and southern Drakensberg mountains of the Eastern Cape Province, Lesotho, Kwazulu-Natal, Swaziland, Mpumalanga and Northern Province; also northwards into Zimbabwe, on streambanks, drainage lines and forest margins between 850-2500m.  
Var. amatymbica is widespread but var. aquatica is recorded only from the Eastern Cape Province between Somerset East and Cala, and var. microbracteata only from the Umzinto region of southern Kwazulu/Natal 1. Recent work suggests however that only two forms of Alepidea amatymbica are distinguishable: a typical form from the Eastern Cape with leaves tapering toward the base and a northern form with cordate leaves 2.

**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.  

Only one collection of this species was available for TLC assessment. Further work is required.

**Major compounds:**  
Methanol extract:  
RetentionPolicy (mins): 5.67; 6.93

![Figure 4: distribution map](image)

**Purity tests**  

**Assay**  
Not yet available

**Major chemical constituents**  
This species has been shown to contain a mixture of several kaurene-type diterpenes such as ent-16-kaurene-19-oic acid (see a below) 3, which may together constitute up to 11.8% of rhizome and root dry mass 4. Very similar compounds occur in *Arctopus echinatus* (Apiaceae), also used in traditional medical practice.

![Figure 6: HPLC spectrum](image)


Dosage forms

Fresh or cooked rhizome and roots are chewed or sucked and dried powdered drug used as a snuff. Smoke from burning dry material is inhaled and a root infusion taken orally or administered per rectum as an enema. Fresh rhizome is applied externally as a styptic.

Medicinal uses

This species is highly regarded as a remedy for respiratory tract infections, asthma, sore throat, gastro-intestinal complaints, fever, rheumatism, bleeding wounds and headache.

Pharmacology/bioactivity

Preliminary in vivo assays (animals) have demonstrated antimicrobial, antihypertensive and diuretic activity. In vitro vasorelaxation (rat aorta; dose 0.1mg/ml) and in vivo diuretic activity (IG; rat; dose 50.0mg/kg) have been demonstrated for hexane/ethyl acetate extracts of fresh rhizome. GR12

The results of an investigation of cytotoxicity and antiviral activity of 16 South African plant species showed that aqueous extracts of *Alepidea amatymbica* were not cytotoxic, at any concentration used in the test, to HeLa, Vero, Jurkat E6.1, AA-2 or CEM-SS cells. Similar extracts were found to reduce the infectivity of both Coxsackie B2 virus and HSV-1, at most dilutions used. In a cell culture antiviral assay, aqueous extracts did not inhibit replication of HSV-1 but inhibited that of Cocksackie B2 virus at the higher concentrations tested.

Contraindications

None known

Adverse reactions

None recorded

Precautions

No special precautions

Dosage

For respiratory complaints (cough, cold, influenza), the recommended adult dose is one tablespoonful of raw or cooked rhizome and root; for children one to two teaspoonsful, according to age, is sufficient.

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