

PESTICIDAL PLANT LEAFLET

Aloe ferox Mill.



Taxonomy and nomenclature

Family: Xanthorrhoeaceae (formerly Asphodelaceae)

Synonym(s): *Aloe candelabrum* A. Berger (1906)

Vernacular/ common names :

(English): Red aloe, bitter aloe, cape aloe

(French): Aloes du Cap

Distribution and habitat

A. ferox is indigenous to South Africa and Lesotho, growing in the semi-arid open plains to rocky mountain slopes. In Kenya it is commonly cultivated in Nairobi gardens and its environs. It is distributed throughout the tropics and sub tropics where it grows as an ornamental or medicinal plant. It grows in a wide range of climatic conditions, but abundant on arid, rocky hillsides up to 1000 m altitude, where mean temperature ranges from 27-31 °C and annual rainfall is 50-300 mm.

Uses

There are two main useful products obtained from *A. ferox*. Aloe gel comes from the leaf parenchyma, the white inner fleshy part. It drains from the leaf when cut and is used for its cleansing, antiseptic, moisturizing and anti-inflammatory properties. Aloe bitters, the dark sap comes from between the green peel and the white jelly and are used as a laxative and to treat arthritis. *A. ferox* has more vitamins, minerals, amino acids and polysaccharides than *A. vera*.

Insecticidal - It repels insects when planted as a live fence. The leaf ash is also used as an insect repellent and can be dusted onto stored maize or cowpea at a concentration of about 5% w/w as reported for *A. marlothii*.

Medicinal - In humans it regenerates injured nerves and new skin cells, soothes sunburn, wounds, insect bites, eczema, ringworm, rashes, acne, reduces pain and swelling of arthritis and rheumatism and is used to treat ophthalmia and syphilis. In cattle, it is used to treat jaundice, red water and expels worms.



Botanical description

A. ferox is a single-stemmed plant growing up to 2-5 m tall. The crown is a dense rosette of green to red-brown succulent leaves up to 1 m long and the stem is covered in persistent dried leaves. Each leaf has brown spines along the margins and often on the surfaces. The flowers are bisexual, about 10 cylindrical racemes on a branched panicle, long with dark orange stamens protruding from the mouth. Some forms can have bright red, yellow or white flowers.

Note: Always verify your plant specimen and deposit a voucher in a verified herbarium.

Fruit and Seed description

Fruit is an ovoid capsule up to 3 cm long, many seeded. The seeds are about 9 mm long, broadly winged. The seeds storage of *A. ferox* is orthodox. The dry seeds survive without significant reduction in their viability and thus can be stored by long-term freezing.

Flowering and fruiting habit

In South Africa the striking flowers are seen in winter from May to October.

Seed storage behaviour

Seed storage is orthodox. The seeds of *A. ferox* survive being dried without significantly reducing their viability, and are therefore amenable to long-term cold storage.

Growth and development

The flower morphology suggests pollination by birds and honey bees. It is self-incompatible and only a few flowers per raceme flower simultaneously. The stamens produce pollen in the morning and wither in the afternoon.

Propagation

A. ferox is easy to cultivate. It grows best in free draining compost which should be soaked and allowed to dry out between watering and light watering in winter. It grows well in a cool/ warm glasshouse and put outside in summer. It can be propagated by seed and planting of the tops of old plants. It can also regenerate from root and embryo tissue.

Harvesting

Harvesting of leaves is sustainable by cutting older ones and leaving younger ones and growing tips. The leaves are cut off transversely and exudates allowed to drain for 4-5 hours. Squeezing the leaves by warm or cold water retting will also drain the exudates. There are more exudates in wet rather than dry months. The gel is obtained by removing the outer tissues and/ or by scraping it from the leaf blade cut lengthwise. Two tonnes of *A. ferox* yield about 1 kg of gel powder, which is higher than for *A. vera*.

Conservation status

Aloe ferox is common throughout its range in South Africa. Most of the material used in commercial products is wild-harvested; there are concerns that increasing demands will threaten the sustainability of this resource.

Safety measure

Always use gloves, protective clothing and caution when handling and applying plant materials to field crops or stored commodities and minimise exposure of consumers. Avoid contact with the skin. In case of accidental contact, immediately wash the affected area with clean running water.

Selected readings

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www.sanbi.org/biodiversity/reddata.07/10/2009.

www.database.prota.org.

www.seedaholic.com.

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Achiano, K.A., Giliomee, J.H., Pringle, K.L. 1999. The use of ash from *Aloe marlothii* Berger for the control of maize weevil, *Sitophilus zeamais* Motschulsky (Coleoptera: Curculionidae), in stored maize. *African Entomology*, 7, 169-172

Fourie, J.J., Fourie, L. J., Horak, I. G. (2005). Efficacy of orally administered powdered aloe juice (*Aloe ferox*) against ticks on cattle and ticks and fleas on dogs. *Jls. Afri. Vet. Ass.* 76 (4), 193-196.

Jellin, J.M., Gregory, P.J., et al. (2008). *Pharmacist's Letter/Prescriber's Letter Natural Medicines Comprehensive Database*. 10th Ed. Therapeutic Research Faculty, Stockton.

Reynolds, G.W. (1950). *The Aloes of South Africa*. Aloes Book Fund, Johannesburg.

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Pesticidal plant leaflets are a series of species wise extension leaflets on botanical pesticides. Leaflets are compiled from existing literature and research available at the time of writing. In order to currently improve recommendations, ICRAF, MSBP and the University of Greenwich encourage feedback from users and researchers who have experience with the species. Comments, corrections, improvements and amendments will be incorporated into future edited leaflets.

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