

PESTICIDAL PLANT LEAFLET

Securidaca longepedunculata



Taxonomy and nomenclature

Family: Polygalaceae

Vernacular/ common names :

(English): violet tree, fibre tree, Rhodesian violet

(Afrikans): krinkhout

(Amharic): Es a manahi

(Tigrigna): shotora

(Swahili): Muteya, mzingi

Distribution and habitat

It grows in varying climatic conditions, from hot arid to humid climates and in broad vegetation range, from semi-arid to dense forest. It is common in sub-saharan Africa in Savannah and Sahel environments. In Kenya, it can be found in Makueni and Kwale.

Uses

Pesticidal - The root bark has pesticidal properties against grain weevil and large grain borer in stored grains. Root extracts has properties against molluscs. Roots are poisonous and traditionally used as arrow poison.

Medicinal - Violet tree is a most popular traditional medicinal plant in many African countries. Powdered roots and bark or infusions are traditionally used to treat headache, stomach and chest problems, inflammation, tuberculosis, venereal diseases, constipation, toothache among others. It is reported to have antimicrobial activities against protozoa, bacteria and fungi. The active compound securinine has activity against malaria causative agent *Plasmodium falciparum*. Xanthone compounds from the root bark confers action against erectile dysfunction.

Soap – The bark is used for soap.

Fibre – The strong and durable fibres from the inner bark are used for fishing nets, baskets, bark cloth and strong threads.

Food – Young leaves are used as vegetables and in sauces. Root infusions with maize or sorghum used as a beverage.

Fodder – Animals feed on the roots

Apiculture – The flowers are frequented by bees for honey production.

Fuel – Branches can be burnt for charcoal and firewood.

Timber – The wood is not strong but termite and decay resistant.

Lipids – Oil from flowers and seeds has many cosmetic uses.



Botanical description

It is a small tree up to 6m in height, sometimes spiny and pale grey, smooth bark. Stems are initially pubescent, then glabrous. Leaves vary in size and shape, alternate, commonly in clusters. Flowers are sweetly scented, purple pink, about 1cm in length and in bunches, borne on a long slim stalk.

Fruit and Seed description

Fruit is round nut bearing a membranous wing about 4 cm long, purple when young, beige when mature.

Flowering and fruiting habit

Flowers are produced in March-April in Kenya. When in flower, it attracts birds, butterflies and other insects. Fruits appear in May in Kenya and hang on trees for many months.



Harvesting

Harvesting of seeds is done by hand, best when seeds are mature. Seeds are released from seed coat using a scalpel.

Harvesting of roots for pesticidal use is best by collecting lateral roots at a distance from the main root, avoiding damage to the tap root, to allow the tree to survive.

Propagation and cultivation

Propagation is done by seeds, best collected when mature. Seeds are recalcitrant, thus need processing as soon as collected. Seed coat removed with a scalpel, seeds best

sown in cocopeat or vermiculite or forest soil. Transplant to a media of sand:soil in polythene bags for growth.

Root cuttings are also used for propagation.

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

Belmain S, Stevenson P (2001). Ethnobotanicals in Ghana: Revising and modernising age-old farmer practice. *Pest. Outlook.*, 6: 233–238.

Stevenson, P.C. Veitch, N.C., Jayasekera, T.K., Belmain, S.R., (2009). Bisdesmosidic saponins from *Securidaca longepedunculata* (Polygalaceae) with deterrent and toxic properties to Coleopteran storage pests. *Journal of Agricultural and Food Chemistry* 57: 8860–8867.

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Zulu D, Thokozani B, Sileshi G, Teklehaimanot Z, Gondwe D, Sarasan V and Stevenson P C (2011) Propagation of the African medicinal and pesticidal plant, *Securidaca Longipedunculata* (2011). *African Journal of Biotechnology* 10(32), pp. 5988-5992

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Seed leaflets are a series of species wise extension leaflets pesticidal species with special emphasis on seed technology. Leaflets are compiled from existing literature and research available at the time of writing. In order to currently improve recommendations, ICRAF 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. Please write your comments to: p.anjarwalla@cgiar.org or p.c.stevenson@greenwich.ac.uk