

PESTICIDAL PLANT LEAFLET

Dysphania ambrosioides L.



Taxonomy and nomenclature

Family: Chenopodiaceae

Synonym: *Chenopodium ambrosioides* (L.) Mosyakin & Clemants

Vernacular/ common names:

(English): Wormseed, Mexican tea

(Maa): Ngaingunudero

(Kipsigis): Kibirosit

(Kamba): Muanzo/ Mwianzo



Photograph B T Wursten

Distribution and habitat

It is found throughout the tropical and subtropical regions of the world, but mostly polymorphic in South America. It is found in a variety of disturbed habitats, gardens, cultivated fields, waste ground but most often on sand by rivers. Preferred altitude ranges between 550-1620 m. In Kenya, it is found in Tsavo East National Park, in Nyeri, Limuru, Thika, Machakos and Laikipia.

Uses

Pesticidal - Leaf decoction is used as a fumigant against mosquitoes and flies and kills snails. Also used as a fungi toxicant in post harvest grain protection. Added to fertilizers to inhibit insect larvae. Oil used as post-harvest grain protection as a fungi toxicant. Powdered leaves can be added to stored grain at around 0.5% w/w to control Bruchids in bean or up to 5% w/w for the control of maize storage pests including *Sitophilus zeamais*. Consumption of the leaf powder should be avoided on account of the potential harmful effects of the active ingredient ascaridole although this compound is volatile and will naturally escape stored products. Regular agitation of stored bags may help to reinvigorate the effects of the plant material. Widdowing off plant material before use will reduce risk.

Food - Leaves used as condiments in soups or tea. Soaked and cooked seeds are consumed in moderation.

Medicinal - Tea drunk to expel parasitic worms from the body of humans and livestock. Used as remedy for stomach pains, used to clean haemorrhoids, detoxify snakebites and other poisons, clean wounds. Oil used to treat athletes foot and insect bites.

Botanical description

D. ambrosioides is a hermaphroditic herb, usually annual, up to 180 cm high, upright, much branched, green. Leaves are mostly lanceolate (up to 4 cm long and 1 cm wide) and toothed. Flowers are small, green, in an elongated, dense, terminal cluster, petals none.

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

Fruits and seed description

The bracts of the fruits are green or brown, often enclosed in infolded perianth. The fruit odour is strong, the taste pungent and bitter. Seeds are horizontal or vertical (rarely oblique), lenticular to subglobose, seed coat black, brown or reddish brown, embryo annular or horseshoe-shaped, surrounding copious farinaceous perisperm.

Flowering and fruiting habit

In Kenya, it flowers in July-August and the fruits are ripe in September.

Harvesting

The plant can be harvested by cutting the centre stem first, to encourage bushing. The plant can be pruned frequently to prevent flowering and assure continuing supply of leaves. Plants are cut for oil or dried for liquid extracts and powder. Leaves are also picked and used as required fresh.

Propagation and cultivation

It grows easily in most soils but prefers sandy loam and sunny dry zones and soil pH 5.2-8.3. Seeds germinate easily when sown fresh. Germination rates are good and seedlings appear within a few days of sowing the seed.

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

Caution: This plant can be invasive

Selected readings

USDA Plants database. (<http://plants.usda.gov>).

Hammouda, F.M., Ismail, S.I., Abdel-Azim N.S., Shams K.A. and Batanouny K.H., (2005). A Guide to Medicinal Plants in North Africa. IUCN Centre for Mediterranean Cooperation, Malaga, Spain.

Tapondjou, L.A., Adler, C.; Bouda, H. & Fontem, D.A. (2002). Efficacy of powder and essential oil from *Chenopodium ambrosioides* leaves as post-harvest grain protectants against six-stored product beetle. *Journal of stored products research*, 38, 395-402.

Selase, A.G. & Getu, E. (2009). Evaluation of botanical plants powders against *Zabrotes haricot* beans under laboratory condition. *African journal of Agricultural Research*, 4 (10), 1073-1079.

Sousa, Z.L., de Oliveira, F., da Conceição, A., Alberto, L., Silva, M., Rossi, M., da S Santos, J. and Andrioli, J.(2012). Biological activities of extracts from *Chenopodium ambrosioides* lineu and *Kiel meyerana neglecta* saddi. *Annals of Clinical microbiology and antimicrobials*, 11, 20.

Raintree's Tropical Plant Database. (rain-tree.com).

Authors: P. Anjarwalla, D. A. Ofori, R. Jamnadass, P. C. Stevenson, P. Smith.

ISBN 978-92-9059-341-6

July 2013

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.

Please write your comments to: p.anjarwalla@cgiar.org or d.ofori@cgiar.org