

INVENTORY OF USEFUL BOTANICALS IN ECOLOGICAL ORGANIC AGRICULTURE.

1.0 Introduction

Inventory on botanicals includes baseline floristic information on composition of plant communities and the species present within a specified area, which are useful in ecological organic production. The inventory is a credible and widely recognized resource in promoting scientific research, conservation planning, and effective enforcement of environmental laws.

Plants used by organic growers to fertilize and to kill insect pests and to feed animals are listed, for each species are given: the botanical name with synonyms; vernacular name; locality/ habitus; approximate distribution and the uses. Results of a literature search and surveys are also reported, including medical use, isolated constituents and pharmacological effects.

1. *Croton dichrogamas*

Distribution: Musoma District
Moshi District- Rau Forest
Singida District- 24 km from Singida on Itigi road

Habitat: Dry Forest, bushland and thicket on rocky ground, lava and porous soils

Altitude: 550-200m

Uses:

2. *Rauvolfia caffra*

Distribution: Arusha District -Arusha

Morogoro District- Mtibwa Forest Reserve
Iringa District-Ilongali

Habitat: Riveline forest, Swamp forest and moist forest

Altitude: 450-1950m

3. *Tagetes minuta*

Distribution: Ngara District- Buguli, Nyamiaga
Pare District- Mpinji, mtamba
Mbeya district- Mbeya Forest Reserve

Habitat:

Altitude: 850-2750m

Uses: Used to repeal siafu

4. *Crotolaria Spp.*

Distribution: Some exotic , some indigenous.

Habitat: variable ranging from riverine forests, upland grassland, *Brachystegia* (miombo) woodland, deciduous bushland to margins of cultivations.

Uses: Green manure as cover crops

Altitude: 0-2550m above sea level

5. *Securidaca longepedun culata*

Distribution: Babati District- Sigino
Lushoto District-Between Soni and Mombo
Morogoro District-Ruvu Forest Reserve
N.B(It is recognized to occur in every region of Tanganyika)

Habitat: Wooded and bushed grassland, scattered tree, grassland, open forest or woodland, secondary bushland.

Altitude: 0-1700m above sea level.

6. *Tephrosia vogelii*

Distribution: Recognized to occur throughout Tanzania including Zanzibar but recorded only in the following areas;
Bukoba District:-Nyahato, Pare district- Mamba, Morogoro- mgeta, Rungwe district- kwimbila, Pemba Island Shengejuu

Habitat: Is cultivated for its insecticidal property, it grows in Grassland, Forest margins, waste ground and old cultivation.

Altitude: 0-2100m

Rainfall: Over1100mm.

Ecology: Is cultivated for its insecticidal property, it grows in grassland forest margins waste ground and old cultivation.

7. *Acacia drepanolobium*

Distribution: Shinyanga district- near Kizumbi
Moshi district - Ngarenairobi
Dodoma District – Mwitikira
(Many other occurrences not reported)

Habitat: Shrub or dwarf tree grassland, gregarious, usually on alkaline hardpan grey soils with *lannea humilis* and *commiphora schimperii* or in fringing "mbuga" or on dark clay cracking lime accumulating soils.

Uses: In cattle in case of retained placenta

8. *Ricinus Communis*

Distribution: (All over Tanzania including Zanzibar

Mwanza District: Ukerewe Island (Now- new District Ukerewe)
Mpanda District slope of Nusenabantu Mafia Island: Chole Island

Uses: In case a cow swallows a plastic or nylon bag in the grazing area, seeds of this plant are given to it. They induce diarrhea so that eventually the nylon/plastic comes out with the feces. (Seeds contain much oil) Altitude 0-2590M

Habitat: Widely grown and readily naturalized in areas of moderate to good rainfall in frost-free areas, poisonous to stock; the castor oil plant.

9. *Cupressus lusitanica*

Distribution: Exotic but widely cultivated in plantations for insect-resistant, light timber.

Use: Lower stems broken, dried, and mixed with grain in store to keep away pests.

10. *Juniperus procera*

Distribution: Kilimanjaro, Arusha, Manyara, Tanga, Iringa, Mbeya

Habitat: Highlands

Use: Leaves dried and mixed with grains for prevention against pests

11. *Sphaeranthus bullatus*

Distribution: Arusha District: Sakilo Swamp
Tanga District: Mkonko, Mnyuzi
Dodoma District: Beruko

Habitat: Moist places along stream lake edges, rock potholes, swamp sites in seasonally moist grassy plains or along annual pools and luggas, often on impeded drainage soils may be locally common or from mats.

Altitude: 50-1900m

Uses: Leaves boiled, conduction given to a cow in case of retained placenta.

12. *Grewia tembensis*

Distribution: Musoma District- Ikoma
Arusha district- Ngarenanyuki
Kilosa District- Between Berega and Mlali on Mpwapwa road.

Habitat: Wooded and scalterd tree grassland, deciduous bushland especially where water table is seasonally high.

Altitude: 0 -1950m

Uses: Roots/barks/Leaves treat Mastitis(bloched teats) in cows.

13. *Balanites negyptiaca*

Distribution: Arusha region: Longido
Handeni district: Kwafumbili
Morogoro district and many other areas with suitable ecology.

Habitat: Wooded and scaltered tree grassland, deciduous bushland especially where water table is seasonaly high

Altitude: 350-2100m

Uses: Leaves boiled then given to Livestock against babeiosis (red urine)

14. *Tanacetum cinerariifolium*

Habitat The species is a perennial herb found on rocky ground and Mediterranean dry grasslands

Uses Pyrethrum products are used for protection of grains and legumes against larger grain borer (*Prostephanus truncates*). Refines products of pyrethrum for example piperonyl butoxide emulsion is also used

against post harvest pests, like weevil and other grain eating insects.

15. *Euphorbia tirucalli*

Distribution: *E. tirucalli* is widespread in Tanzania

Habitat: Grassland, thin woodland, dry bushland, thickets, and often naturalized around habitation

Altitude: 0 - 2000m.

16. *Jatropha curcas*

Com. name: Physic nut, Coral bush Barbados-nut; Fiki.
Swahili: Mbono, Mkaburi

Distribution: *J. curcas* is widespread in Tanzania, Found in Kagera , Mara, Mwanza, Shinyanga, Arusha, Kilimajaro, Tanza, kigoma, Tabora Rukwa, Dodoma, Singida, Morogoro Pwani, Iringa Mbeya. Ruvuma, Lindi, and Zanzibar.

Uses: *J. curcas* contains Phorbol esters as toxic constituents which cause biochemical and cellular effects

18. *Ricinus communis*

Distribution: The origin of *R. common* is Africa. It is found throughout tropical and subtropical Africa.

Com.name: English: Castor-oil plant, Costor bean
Swahili: Mbono, Mbariki, Mnyonyo

Ecology: *R. common* grows well in wet tropics. It has also been cultivated in subtropical dry regions, and praetors an optimum temperature of 20 – 25⁰C and raifal 750-1000mm. Castor is drought tolerant. It prefers deep, sandy loam. pH of 6; growth can take place on a wide variety of soils, pH 5-8.

Altitude: 0-1900m

19. *Tephrosia vogelii*

Com. name: Fish poison bean
Swahili: Utupa, Mtupa, Mbaazi

Distribution: *T.vogelii* occurs widely in Tanzania, T 1-8 for example it can be found in Mgeta in Morogoro, and Ugweno in Mwanga District.

Habitat: *T. vogelii* is cultivated for its insecticidal property, it grows in grasslands, forest margins, wasteground and old cultivation.

Uses: As an insecticide for the ability of Tephrosia to poison crop pests.

20. *Medicago sativa*

Com.name: Lucerne Alfalfa
Swahili: Lusan, Alfalfa

Distribution: *M.sativa* is found in T 1-3,7.

Uses: Is among the world most important crop used as a forage or hay in ruminants. It has high protein content.

21. *Leucaena latisiliqua* (Syn. *L. glauca*; *L. Leucocephala*)

Com.name Leucaena, horse tamarind,
Swahili: Lukina, Mlusina, Sheck Mbaazi

Distribution: *L.latisiliqua* is an introduced plant widely distributed in Tanzania

Uses: Fodder plant

22. *Erythrophleum suaveolens* (Syn. *E. guineense*)

Com.name: Ordeal tree, Red water tree, Sasy bark
Swahili: Mbaraka mkuu, Mkelekele, Mwavi.

Distribution: Found in Lushoto, Kigoma, Morogoro and Zanzibar

Habitat: *E.suaveolens* grows in riverine and lowland rainforest.

Altitude: 0-1150m.

Uses: Powders prepared from the bark have been used as insecticides. The plant contains cassaine and the alkaloid erythroplein (norcassamidine $C_{24}H_{39}NO_5$) which are associated with toxicity.

23. Phytolacca dodecandra

com.name: Endod, soapberry plants

Swahili: Endod, sopberi

Distribution: Is widely distributed in Tanzania found in all regions of Tanzania e.g Lyamungu in Moshi District, Mugombasi in Kigoma District, Luwira Kiteza Forest Reserve in Songea District and Uyole in Mbeya It is also found at Ilboru Secondary School area in Arusha.

Ecology: grows in a wide range of forest, woodland, bushland, thicket and grassland. It also grows fast near water bodies.

Altitude: 500-2400m

Uses: Used as Moluscides. The plant has Phytolaccotoxin (a saponin) and Phytolaccin (an alkaloid) and oxalic acid as toxic constituents. Endod (dried ground berries) when applied at 70mg/litre is reported to eliminate up to 98% of snail population.

24. Fagopyrum esculentum

Com.name: Buckwheat

Distribution:

Ecology: *F. esculentum* is a cultivated crop. It does well in high potential areas i.e areas with high rainfall and good fertility.

Uses: Animal feed (green fodder)

25. Capsicum frutescens

Com.name: Red paper, Chili paper

Swahili : Pilipili kali, Pilipili Kichaa

Distribution: *C. frutescens* is widely grown in Tanzania especially in tropics and subtropics of Tanzania

Habitat: variety of habitats

Uses: Capsicum contains Capsaicin, which is an irritant poison to most o agriculture pests.