

Kew

PLANTS PEOPLE
POSSIBILITIES



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SEPASAL is a database and enquiry service about useful "wild" and semi-domesticated plants of tropical and subtropical drylands, developed and maintained at the Royal Botanic Gardens, Kew. "Useful" includes plants which humans eat, use as medicine, feed to animals, make things from, use as fuel, and many other uses.

Since 2004, there has been a Namibian SEPASAL team, based at the National Botanical Research Institute of the Ministry of Agriculture which has been updating the information on Namibian species from Namibian and southern African literature and unpublished sources. By August 2007, over 700 Namibian species had been updated.

Work on updating species information, and adding new species to the database, is ongoing. It may be worth visiting the web site and querying the database to obtain the latest information for this species.

Internet SEPASAL

New query

Edit query

View query results

 *Display help*In names list include: synonyms vernacular names and display: All names per page*Your query found 5 taxa***Ximenia americana L. [1597]**

Family: OLACACEAE

Synonyms

Ximenia americana L. var. microphylla Welw. ex Oliv.

Ximenia rogersii Burt Davy

Ximenia laurina Delile

Ximenia exarmata F.Muell.

Ximenia spinosa Salisb.

Vernacular names

Unspecified language	alankluve, abu-khamarei, mideka [623], cagalera [623] [1382], limoncilla, manzanilla, manzanillo, membrillo de monte, pepenace [1062] [1382]
(Ghana)	komi-abonnua [1382], kwaem-akenkaa [1382], lainga [1382], leala [1382], lianga [1382], lilema [1382], miyan [1382], omuntu-tsho [1382], kwaem-ankaa [1382]
(Mexico)	cuk-che [1382], nanchicacao [1382]
(Mozambique)	messenguele [5480], mutenguene [5480], pidzi [5480], tunduluca [5480]
(Nigeria)	alomade [1382], anomadze [1382], bwurihi [1382], chab'buli [1382], igo [1382], mohinge [1382], muhinge [1382], osere [1382], sa'b'bulde [1382], tja'buli [1382], tsada [1382], tswada [1382], umpeque [1382]
(Senegal)	s?n? [1382], tabburli [1382], tiaboule [1382]
(Sierra Leone)	an-thongboto [1382], kpo-wuli [1382], kuta-mareba [1382], lentigel [1382]
Afrikaans (Southern Africa)	blousuurpruim [5121], geelpruim [5121], kleinsuurpruim [5121]
Akan-Asante (Ghana)	kwaem'ankaa [2816]
Arabic	abu-khamerei [1382], alankluwe [1382], alankoawe [1382], ankwi [1382], homeid abiad [1382], kalto [1382], kelto [1382], mideka [1382]
Arabic-Shuwa (Nigeria)	kalto [2816]
Baatonun (Benin)	sonmunoleu [2816]
Bajuni (Kenya)	mtchunda-kula [1597]
Bassari (Togo)	ngmam [2816]
Baule (Ivory Coast)	assukru [2816]
Bena	mpingipingi [5054]
Bende	msantu [5054]
Bidyogo (Guinea-Bissau)	agara [2816]

Bisa (Burkina) muni [2816]
 Bulom (Sierra Leone) lentigel [2816]
 Chagga (Tanzania) lama [5054]
 Dagaari (Burkina) pila [2816]
 Dagaari (Ghana) lianga [2816]
 Dagbani (Ghana) liliema [2816]
 Damara (Namibia) #eeros [5095], #eros [2136], #eros/n [5095], #iiros [5446], #ooros [5446]
 Digo (Kenya) mtundakula [1597]
 Digo (Tanzania) mtundakula [5054]
 Diola (Senegal) bulofigne [2816]
 English false sandalwood [1382] [2816] [5054], mountain plum [1382] [2816], seaside plum [1382] [2816], sour plum [1597], spiny plum [1382] [2816], tallow nut [1382] [1597] [2816], wild lime [1382] [2816], wild olive [1382] [2816], wild plum [1382], beach plum [1382], hog plum [1382], sennet [1382], small sour plum [1171] [1382], tallow wood [1382], yellow plum [1382], small sourplum [5054] [5092] [5177]
 English (Southern Africa) blue sourplum [2795] [5121] [5177]
 French citron de mer [2816], citronnier de mer [2816], prune bord de mer [2816], prune de mer [2816], prune ?pine [2816], prunellier chim?ne [2816]
 Fula-Pulaar (Guinea-Bissau) tcheme [2816]
 Fula-Pulaar (Mali) sarniana [2816]
 Fula-Pulaar (Senegal) tiabuli [2816]
 German (Namibia) Buschpflaume [5123], Gelbe Wildpflaume [5098], Sauerpflaume [5098]
 Giriama (Kenya) mtundakula [1597]
 Gogo (Tanzania) mtundwe [5054]
 Gorowa (Tanzania) tarantu [5054]
 Hausa (Burkina) sadendagi [2816]
 Hehe (Tanzania) mingi [2774] [5054], mtundwahi [2774] [5054]
 Ilwana (Kenya) huda-hudo [1597]
 Iraqw (Tanzania) mutuhu [2774] [5054], tarantu [2774] [5054], tahhamanto [2774] [5054]
 Jul'hoan (Namibia) g!oo!uni [5088]
 Kikamba (Kenya) kitula [1597], mutula [1597]
 Kikuyu (Kenya) mutura [1597]
 Kirma (Burkina) domutioro [2816]
 Konkomba (Ghana) dingmal [2816]
 Kung Bushmen kho!oni [5098]
 Kweni (Ivory Coast) wanwaniri [2816]
 Luo (Kenya) olemo [1597]
 Maa (Kenya) ol-amai [1597]
 Maasai (Tanzania) olama [2774] [5054], engamai (plural) [5054], ilama (plural) [5054], lama [5054], olamai [5054]
 Manding-Bambara (Burkina) nugbe [2816]

Mandinka (Senegal)	seno [2816]
Maninka (Ivory Coast)	ngbani [2816]
Marakwet (Kenya)	timyotwa [1597]
Mbeere (Kenya)	mu-tura [1110]
Mbeere (Kenya) [fruits]	ndura [1110]
Moore (Ghana)	leala [2816]
Nama (Namibia)	#eros [2136]
Nankanni (Ghana)	lainga [2816]
Ndebele (Southern Africa)	holotshani [1340], kolotshani [1340]
Northern Sotho (Southern Africa)	mohambia [5323], morotologa [5323], morotologana [5323]
Nyamwezi (Tanzania)	mnembwa [5054], mnembwa mudo [5054], mtundwa [5054]
Nzema (Ghana)	nyevi domunle [2816]
Oshikwanyama (Namibia)	oshipeke oshikukulu [5098], oshipeke oshilumentu [5098]
Oshindonga (Namibia)	okakukupeke [5098]
Oshiwambo	oombeke [6465]
Oshiwambo (Namibia)	omheke [5121]
Otjiherero (Namibia)	omuninga [5091] [5121] [5381]
Otjiherero (Namibia) [fruit]	ozoninga [5091]
Pokot (Kenya)	kinyotwo [1597]
Rangi (Tanzania)	mjingu [5054]
Rumanyo (Namibia)	kakukuru [5121]
Sambaa (Tanzania)	mtundui [5054]
SeTswana (Botswana)	chibitswa [5093], moretologa-wa-pudi [5093], moretologane [5177], motsididi [5093], nswanja-bakhwa [5093], seretologa [5093]
Sebei (Kenya)	munyotwo [1597], mutenywa [1597]
Sehwi (Ghana)	eboro domui [2816]
Setswana (Southern Africa)	moretologana [1340] [5093], morotologa [1340]
Shangana (southern Africa)	ntsengele [1340]
Silozi	mungomba [5121], mutenta [5123]
Siswati (Southern Africa)	umtunduluka [1171]
Siswati (Swaziland)	amatunduluka [1171] [1340]
Somali (Kenya)	madarud [1597]
Sukuma	mpingi [2774] [5054], mtundwa [2774] [5054]

(Tanzania)	
Swahili (Kenya)	mtundakula [1597] [5054]
Thimbukushu (Namibia)	mutemyahambya [5098]
Tonga (Southern Africa)	musomvwa [1340]
Tsonga (Southern Africa)	musomuwu [5139], ntsengele (yantsongo) [5139], ndzengele [5323]
Tukulor (Senegal)	tiabuli [2816]
Venda (Southern Africa)	mutanzwa [1171]
Vulgar (Senegal)	ngologne [2816]
Zigua (Tanzania)	mtundwi [2774] [5054]
Zulu (Southern Africa)	ukolotshane [1171], umthundaluka [1171]

Distribution

Plant origin	Continent	Region	Botanical country	
Native	Africa	East Tropical Africa	Kenya [1362], Tanzania [1362], Uganda [1362]	
		Northeast Tropical Africa	Chad [1382] [2837], Ethiopia [1362], Somalia [1362], Sudan [623] [1382] [2837]	
		South Tropical Africa	Angola [5701], Malawi [1279], Mozambique [1279] [5701], Zambia [5481] [5701], Zimbabwe [1279] [5419] [5701]	
		Southern Africa	Botswana [1279] [5701], Caprivi Strip [5121], Namibia [5121], Swaziland [5452], Transvaal [1362]	
		West Tropical Africa	Ghana [1382] [2837], Guinea [1382] [2837], Guinea-Bissau [1382] [2837], Ivory Coast [1382] [2837], Liberia [1382] [2837], Mali [1382] [2837], Nigeria [1382] [2837], Senegal [1382] [2816] [2837], Sierra Leone [1382] [2837], Togo [1382] [2837]	
		West-Central Tropical Africa	Cameroon [1382] [2816] [2837], Zaire [1382] [2837]	
		Western Indian Ocean	Seychelles	
		Asia-Temperate	China	
		Asia-Tropical	Indian Subcontinent	Sri Lanka
			Indo-China	Burma
Malesia	Papua New Guinea, Philippines			

	North Indian Ocean	Andaman Is
Australasia	Australia	Queensland [1609]
Northern America	Southeastern U.S.A.	Florida [1382]
Pacific	Southwestern Pacific	South Solomons, Western Samoa
Southern America	Brazil	Piaui
	Caribbean	Bahamas, Dominican Republic, Haiti, Trinidad-Tobago
	Mesoamerica	Belize, Guatemala
	Northern South America	Guyana, Surinam
	Southern South America	Paraguay
	Western South America	Bolivia, Colombia
Assumed Native	Australasia	Australia
		Coral Sea Is Terr. [1609]

ISO countries: Argentina , Indonesia , India [[1382](#)] , Mexico [[1062](#)] , Malaysia , South Africa [[1279](#)] [[2837](#)]

Descriptors

Category	Descriptors and states
DESCRIPTION	Evergreen [5121]; Deciduous [623] [1382]; Erect [5082] [5104] [5121]; Dioecious [2795]; Hemiparasitic [5121]; Terrestrial; Shrub [1142] [1382] [1597] [2774] [2837] [5054]; Broadleaved [6166]; Climber/Scrambler/Scandent [5121] [5123]; Tree [623] [1382] [1597] [2774] [2837] [5054]; Perennial [5104]; Thicket Forming [5121]; Fragrant - stems [1597] [5323]; Fragrant - inflorescences [2774] [2816]; Thorny/Spiny - stems [2837]; Plant Height <= 8 m [1362] [2774] [5054]
CLIMATE	Marked Dry Season [6166]; Tropical Summer Rains [6166]; Annual Rainfall 100-1270 mm [1382] [5121]
SOILS	Deep [5123]; Limestone Parent Material [5101] [5123]; Boulders/Rocky [1597]; Gravels/Stony [1279] [1382] [2837] [5154]; Sandy [1279] [5154]; Sands [1382] [1609] [5121]; Loamy Sands [1382] [5123]; Dry [1382]; Sandy Loams [5123]; Loams [1382] [1609] [5123] [5154]; Clay Loams [1382] [5123]; Sandy Clay Loams [1382]; Clays [1382] [2837] [5123]
HABITAT	Coastal Regions [1382] [1609] [5054]; Lowland [5139]; Plateaux [5123]; Forest [1609] [5123]; Non-Coastal Regions [1609] [5121]; Upland [5091]; Woodland [1279] [1597] [2837] [5123]; Shrubland/Bushland/Scrub [1597] [1609] [5123]; Grassland/Forb-Land [5123]; Wooded Grassland [1597] [5054] [5154]; Hillsides/Slopes [5121]; Gullies [5123]; Physiognomically Mixed Vegetation [1609]; Termitaria [554]; Fixed Dunes [5121] [5123]; Watercourses [1382] [2837] [5121]; Non-Permanent Watercourses [5121]; Rural Anthropogenic Landscapes [5123] [5154]; Flats [5123]; Pans [5101] [5121]; Plains [5153]; Altitude 1-2000 m a.s.l. [1597] [2774]
WOOD PROPERTIES	Heartwood Brown/Shades of Brown [1382]; Workability - Easy [2391]; Heartwood Red/Shades of Red [5323]; Durable [2391] [2774]; High Density [1382] [1597] [2774] [5323]; Heartwood Yellow/Shades of Yellow [1382]; Moderately Durable [1382]; Hard [5323]
PRODUCTION AND VALUE	Subsistence Value [2795]; Potential Food Uses [2795]; Wild Plants Utilised [5121]; Traded Globally Between Continents [6465]; Used in Cosmetic Industry [6465] [6468]
SOURCES OF PLANTING MATERIAL	RBG Kew Seed Bank; Other Seed Sources [5181]
FURTHER DATA SOURCES	Botanical Illustration [1362] [2136] [5121] [5177]; Additional References [5089] [6466]; Regional Distribution Map [5082]; Botanical Photograph [2795] [5088] [5121] [6193]; Databases [5123] [5327] [5338] [6195]; Habit Illustration/Photograph [6193]; Grid Map [5093] [5121] [6194] [6195]

SEPASAL
DATASHEET
STATUS

All Data Transferred from SEPASAL Paper Files; Nomenclature Checked

CHEMICAL
ANALYSES

Unspecified Lipids - seeds [5098] [5154] [6467]; Poisonous Compounds - unspecified parts [1382]; Biological Activity - unspecified parts [5154]; Tannins - bark [1382]; Laboratory Tested Biological Activity - leaves [644] [1382]; Tannins - 'roots' [1382]; Cyanogenic Glycosides - leaves [549] [1382]; Vitamin C (ascorbic acid) - infructescences [5098]

Uses

Major use

Use group

Specific uses

FOOD

Unspecified Parts

potable water [1188] [1332]

Bark

beers; famine food

Leaves

green vegetables [1244] [1382]; raw; oils/fats

Inflorescences

corollas [1379] [1382]

Infructescences

fruit pulp, dessert fruits [623] [1062] [1126] [1142] [1279] [1382] [1597] [2816] [2837]; fruits, jams/jellies [1142] [1171] [1382] [2816]; fruits, beers [1171] [1257] [1279] [1382]; fruits, famine food [1110] [2816]; non-alcoholic beverages [1171] [1382] [2136]; fruits, alcoholic beverages [2136] [5118] [5121]; cereals, porridges [1171]; fruits, raw [1171] [1304] [1332] [2136] [5088] [5091] [5094] [5095] [5098] [5101] [5118] [5139]

Seeds

seed oil, oils/fats [623] [1171] [1280] [1379] [1597] [2837]; coffee substitutes [5095]; entire seeds, non-alcoholic beverages [5095]

FOOD ADDITIVES

Leaves

flavourings [1142]

ANIMAL FOOD

Fertile Plant Parts

fruits, squirrels [5121]; fruits, birds [5121] [5123]

Aerial Parts

leafy stems/branches, game mammals, browse [1382] [1519]; cattle, browse [1382]; sheep, browse [1382]; goats, browse [1382] [5095] [5123] [6465]; fodder [2774]

BEE PLANTS [5121]

MATERIALS

Unspecified Materials

seeds, soap [2774]; bark, cosmetics; fruits, soap [1157]; wood [1062] [1142]; fruits, shampoo [6465]

Wood

cabinets; tool handles [2774]

Gums/Resins

leaves, resins [2816]

Tannins/Dyestuffs

bark, tannins [1062] [2391]; 'roots', tannins [2391]; roots, dyes, red [2816]; leaves, tannins [2816]; fruits, dyes, ornaments [1304]; dyes, baskets [1304]; fruits, dyes, baskets [1304]; fruits, dyes, clothing [1304]; entire seeds, tannins [5095]; root bark, dyes, baskets [5123]

Lipids

seeds, oils [1062] [1304] [2136] [2816]; seeds, non-drying oils, lubricants [1142] [1382] [2774] [2816]; seeds, soap [1142] [1382] [2391] [2816] [6465]; seeds, non-drying oils, illuminants [1382] [2391]; seeds, semi-drying oils, paints/varnishes/thinners; seed oil, candles [1142]; seeds, oils, hair oil/lacquer [1304] [5101] [6465]; seeds, oils, skin cosmetics [1304] [2795] [5091] [5098] [5101] [5177] [6465]

Essential Oils

wood [1142]; flowers [1382]; seeds, soap [2774]

Other

seeds, cosmetics [5095]; roots, deodorants [5095]

Materials/Chemicals

FUELS [1382] [2391]
[2774]

Fuelwood

Charcoal

wood [1382] [2391]

SOCIAL USES

'Religious' Uses

roots, ritual/religion/magic [2816]; leaves, ritual/religion/magic

		[2816]
VERTEBRATE POISONS	Unspecified Vertebrates	seeds
	Mammals	exudates; leaves [2816]
NON-VERTEBRATE POISONS	Arthropoda	bark, Insecta, repellent [1142]; Siphonaptera (fleas), repellent, livestock pest control [2816]
MEDICINES		prophylactic, ointments [5098]
	Unspecified Medicinal Disorders	bark, humans [1142] [1257] [1279] [1382] [2774]; fruits, humans [1142] [1257] [1382]; leaves, humans [1257] [1382] [2774]; 'roots', humans [1142] [1257] [1382] [2774] [5154]; seeds, humans [1142]; bark, humans [3039]
	Abnormalities	roots, humans, oedemas [2391]; roots, humans, oedemas, inhalers [2816]
	Circulatory System Disorders	'roots', veins, haemorrhoids; leaves, humans, angina [2816]
	Digestive System Disorders	fruits, humans, laxative [2816]; fruits, humans, jejunum, constipation [623] [2816]; fruits, humans, purgative [1142] [1609]; roots, humans, intestine, diarrhoea [1340] [2816] [5395]; roots, humans, teeth [2816]; roots, cattle, diarrhoea [2816]; fruits, cattle, diarrhoea [2816]; leaves, humans, teeth [2816]; leaves, humans, flatulence [2816]; leaves, humans, hernia [2816]; leaves, humans, constipation [2700] [6211]; leaves, diarrhoea [1340] [5395]; roots, humans, stomach, oral ingestion [5098]; root bark, humans, intestine, diarrhoea, oral ingestion [5098]; leaves, humans, intestine, diarrhoea, antidote, oral ingestion [2816]
	Genitourinary System Disorders	bark, humans, kidneys; roots, humans, impotence [2816]; fruits, humans, female sterility [5154]; menorrhagia [5154]
	Ill-defined Symptoms	roots, humans, oral ingestion [5154]
	Infections/Infestations	'roots', leprosy [1382] [2391] [2816]; 'roots', humans, intestine [2391]; 'roots', humans, fever [2391] [2816] [5098]; bark, humans, ringworm [2816]; roots, humans, ringworm [2816]; roots, humans, guinea worm infection [2816]; roots, humans, venereal diseases (non-specified) [2816]; leaves, humans, colds [2816]; roots, humans, gonorrhoea, oral ingestion [5095]; leaves, cattle, eyes [1304]; leaves, goats, eyes [1304]; bark, humans, skin/subcutaneous cellular tissue, fever, external applications [2136]; leaves, humans, fever, oral ingestion [2136]; roots, humans, trypanosomiasis [1340] [2136] [5395]; roots, humans, schistosomiasis [2136]; roots, humans, schistosomiasis, oral ingestion [5154]; anthelmintic [5154]; conjunctivae [5154]; leaves, humans, venereal diseases (non- specified), oral ingestion [2136] [5098]; kernels, humans, influenza, oral ingestion [5088]
	Inflammation	leaves, humans, colon [2816]
	Injuries	bark, humans, wounds [1382]; leaves, humans, wounds [2816]; roots, humans, wounds, external applications [5154]; kernels, humans, wounds, external applications [5088]; seeds, humans, burns, external applications [5095]; kernels, humans, wounds, ointments [5101]; seeds, humans, superficial injuries, external applications [5095]; root bark, humans, burns, external applications [5095]
	Mental Disorders	roots, humans, sleep disorders [2816]
	Muscular-Skeletal System Disorders	leaves, humans, head [2816]; roots, humans, head [2816]; leaves, humans, chest [2816]; rheumatism [5154]
	Pain	'roots', humans, head [2816]; leaves, humans, head [2816]; leaves,

		humans, teeth [2700] [6211]; roots, humans, head, poultices [2136]; roots, humans, stomach [1340] [2136] [5154] [5395]; bark, humans, teeth, mouth washes [1340] [5395]; bark, humans, stomach, oral ingestion [5154] [5395]; roots, humans, external applications [5154]; roots, humans, abdomen, enemas [5098]; roots, humans, stomach, oral ingestion [5154]
	Poisonings	'roots', humans, snake bites, antidote [2391] [2816]
	Respiratory System Disorders	leaves, humans, coughs [2816]; roots, humans, lungs, oral ingestion [5101]; leaves, humans, coughs, oral ingestion [1340] [2136] [5098] [5395]
	Sensory System Disorders	leaves, humans, eyes, lotions [2700] [2816] [6211]; fruit juice, humans, eyes [5098]
	Skin/Subcutaneous Cellular Tissue Disorders	bark, disinfectant [1142]; bark, astringent [1062] [1142] [2816]; bark, humans, dermatitis [2816]; roots, humans, dermatitis [2816]; bark, humans, ulcers [2816]; roots, humans, ulcers [2816]; bark, humans, sores [2816]; roots, humans, sores [2816]; leaves, humans, astringent [2816]; seeds, humans, boils, external applications [5381]; bark, humans, skin [1340] [5395]; root bark, humans, boils, external applications [5095]
ENVIRONMENTAL USES	Unspecified Environmental Uses	hedges [1382] [2391] [2816] [2837]

Picture

None recorded

Notes

NOMENCLATURE/TAXONOMY

Name derivation:

Ximения is named after Father F. Ximenez (1666-1721), a Dominican who studied the people and natural history of Central America [2136] .

There are two varieties in Africa, var. americana and var. microphylla. The latter has smaller, more blue-green leaves than var. americana [5121] .

VERNACULAR NAMES

Hedberg and Staugard (1989) give numerous vernacular names from other parts of the world, with no associated languages [5154] .

Khoekhoegowab:

Damara (Namibia): #ero means 'sour', referring to the fruits [5095] .

DISTRIBUTION

Botswana:

Var. americana in the north and central; var. microphylla widespread, except for the southwest [5093] .

Mozambique:

South and central [5480] .

Namibia:

Northern and west central. Var. microphylla is common while var. americana is rare [5121] .

South Africa:

Only var. microphylla [5104] .

Swaziland:

Only var. microphylla [5452] .

Zimbabwe:

Only var. *microphylla* [5419] .

RARITY/CONSERVATION

Regeneration in natural forests is very sparse, possibly due to drought and fire affecting seedlings, hence protection of natural habitat could help increase production [1382] .

DESCRIPTION

Height:

Up to 7 m [623] [1362] .

Height:

Up to 6 m [1597] .

Fruits:

Oval, 2.5 cm long, yellow to red when ripe [1279] .

Spinous, laxly branched, semi-scandent shrub [554] .

Height:

4-5 m [1142] .

Fruits:

Globose to ellipsoidal drupe 2-3 cm in diameter and yellow [1137] .

Flowers:

Plum-like but with strong benzaldehyde aroma with bitter almonds [1137] .

Height:

Up to 5 m [2816] .

Leaves:

Have a smell of bitter almond [2816] .

Habit:

Sometimes semi-parasitic, having haustoria on the roots [2837] .

Leaves:

Alternate, blade 3-7 cm long and up to 3 cm broad, without marginal teeth, variable in texture from thick and semi-succulent to thin and shining [2816] .

Flowers:

Borne in the axis of the leaves in 4-6 flowered groups, sweet-scented, petals 4, 1-1.5 cm long, whitish, densely hairy on the inner surface [2837] .

Fruits:

Spherical to ellipsoid, 1.5-2.5 cm long, yellow, tough-skinned with a single hard seed [2837] .

Lifeform:

Shrubby, deciduous, spiny savanna bush or tree [623] .

Bark:

Dark with scales, slash crimson and fibrous [623] .

Flowers:

White and fragrant, small, in small branched clusters with a common stalk [623] [5054] .

Fruits:

Plum-like, 2.5 cm diameter, ellipsoid, yellow and glabrous [623] [2816] .

Stems:

Spines sharp and slender, up to 2.5 cm [623] .

Height:

Up to 4 m [2774] [5054] .

Height:

4-5(-8) m [1382] [2837] .

Leaves:

Oblong, in the axils of straight spines, bluish-green to grey green [1279] .

Flowers:

Small, greenish white with a white, bearded throat [1279] .

Fruits:

Oval to 2.5 cm, thin skin usually yellow, occasionally pink-red, pulp sour but refreshing, one large seed [2774]

[5054] .

FOOD - UNSPECIFIED PARTS

Potable water:

Ximenia americana var. *microphylla* was used by Bushmen in Namibia and/or Botswana in obtaining food and/or water (Story, 1958 cited in Grivetti, 1981) [1188] .

FOOD - LEAVES

Young leaves, green vegetables:

Edible after thorough cooking .

FOOD - INFRUCTESCENCES

Fruit, cereal, porridges:

The fruit is dehydrated by the Pedi and used in the preparation of various cereal meal porridges (Quin, 1959) [1171] [6150] .

Fruits, raw:

Not as highly valued by the Jul'hoansi of northeastern Namibia as those of *X. caffra* and not collected in large quantities [5088] .

Fruits, raw:

The skin is bitter and the pulp pleasantly flavoured but astringent and sour. Best when over-ripe, as it does not become soft and unpleasant as many fruits do, but dries out slightly, becoming more mellow, with the flavour of a prune [1332] .

Fruits:

When unripe, very acid with the flavour of bitter almonds [1171] .

Fruits:

Rather sour but refreshing [1279] .

Fruits:

Acid and of inferior quality but sometimes eaten [1062] .

Fruits:

Edible and thirst quenching. Much prized by shepherds despite containing prussic acid. [2391] .

Fruits, alcoholic beverages:

Make beer in South Africa [1142] [2391] [2816] .

Fruits:

Used as a staple wild plant by the Sandawe of east Africa. It is available year round (Newman, 1975 cited in Grivetti, 1981) [1188] .

Fruits:

Used in Ethiopia native diet (Getahoun, 1974 cited in Grivetti, 1981) [1188] .

Fruits:

Used in west Nile and Madi Districts of Uganda (Tallantire and Goode, 1975 cited Grivetti, 1981) [1188] .

Fruits:

Used by Maasai and Kipsigis of Kenya (Glover et al., 1966 cited in Grivetti, 1981) [1188] .

Fruits:

Used by east African coastal fishermen (Weiss, 1979 cited in Grivetti, 1981) [1188] .

Fruits, kernels:

Used by Gwembe Tonga of Zambia. Available in October-March (Scudder, 1971 cited in Grivetti, 1981) [1188] .

Fruit pulp, jellies:

Said to be edible but it is of very varied appreciation; to some it is sweet, to others sour and others purgative. In South Africa it is considered a dessert fruit and jelly preserves are made of it, and in N Nigeria people make a sour relish [2816] .

Fruits, non-alcoholic beverages:

Ethiopians prepare a refreshing drink with an acidic flavour by boiling and filtering to which sugar may be added for storage for later use [2816] .

Fruits, famine food:

During the drought years of 1970s, the fruits were eaten as a famine food [2816] .

FOOD - SEEDS

Entire seeds, non-alcoholic beverage:

The seeds soaked in water produce a sweet tasting drink [5095] .

Oils:

Produce oil for eating, do not dry, can be purified and can lose oily taste [2391] .

Oils:

Seeds boiled with water yield a fat used in south India as a substitute for ghee [1137] [1142] .

Kernels, oil/fats, vegetable butter:

Yields a white vegetable butter [623] [2816] .

FOOD - 'ROOTS'

Unspecified parts:

Used by Maasai and Kipsigis of Kenya (Glover et al., 1966 cited in Grivetti, 1981) [1188] .

FOOD ADDITIVES - LEAVES

Flavouring:

Crushed leaves smell of bitter almonds and are used as flavouring in Indonesia [1142] .

ANIMAL FOOD - AERIAL PARTS

Leaves, branches, game mammals, browse:

Small leaves and twigs eaten by elephants; observation made on May 1962 at Ndololo near Voi, Kenya [1519] .

MATERIALS

Wood properties:

Yellowish-red, hard, heavy, fine-grained, scented [5323] .

Fats, seeds:

Locals obtain fat by roasting the seeds and successively treating in boiling water. Oil expressed by expelling is yellow, viscous and mucilaginous. A cleaner product is obtained with solvent extraction, especially acetone, which gives a product free of unsaponifiable matter that can be refined to edible oil [1382] .

Wood properties:

Very heavy, durable, easy to work and polish [2391] .

Lipid properties:

When obtained by expelling is yellow, viscous and mucilaginous. Cleaner product obtained by solvent extraction. Oil characterised by the presence of unusually long-chain acids [1142] .

Wood properties:

Yellow to yellow-red, hard, heavy, fine-grained, resembling boxwood and possessed of a scent like sandalwood [2816] .

Wood properties:

Very heavy and close grained [623] .

MATERIALS - UNSPECIFIED MATERIALS

Fruits, shampoo:

Used in northern Namibia as a dandruff remover [6465] .

Soap, fruits:

Can be made into soap [1157] .

MATERIALS - TANNINS/DYESTUFFS

Dyes, cloth, baskets, ornaments, fruits:

The Kwanyama of Namibia mash the fruit and put it into a large pottery bowl with articles to be dyed. A yellow

substance from *Sorghum caffrorum* is added as a mordant and the solution is set aside for 20-30 days. The article is then rinsed and dried [1304] .

Leather, bark:

Used for tanning leather [623] .

Dye, baskets, root bark:

Used to stain palm leaves for baskets [5123] .

Tannins, seeds:

The burned seeds are rubbed on goat skins as a tanning agent [5095] .

Dyes, red:

A red dye is obtained from them in Chad [2816] .

MATERIALS - LIPIDS

Oils, Skin cosmetics, hair oil, seeds:

The Kwanyama of Namibia mix the oil with red ochre as a cosmetic for skin and hair [1304] .

Oils, seeds:

Seed oil used by the Owambo and Himba of Namibia, and in Nigeria, to soften leather [2136] [2816] .

Seeds, hair oils:

The kernels are roasted and ground to obtain a greasy hair paste [5101] .

Seeds, skin cosmetics, oils:

Sometimes used by the poorer Himba and Tjimba of Namibia as a substitute for the animal fat the women rub into their bodies. It is also pigmented red [5091] .

Seeds, skin cosmetics, oils:

The kernels are roasted and ground to form a greasy base for the brick-coloured powder of *Pterocarpus angolensis* that is used to colour skins [5101] .

Oils, cosmetics:

used in some countries as cosmetics [1142] .

Oils, seeds:

Have high (68-75%) oil (fat at normal temperatures) content [1142] .

MATERIALS - ESSENTIAL OILS

Wood:

Wood contains an essential oil and is used for fumigation in Ethiopia [1142] .

MATERIALS - OTHER MATERIALS/CHEMICALS

Roots, deodorant:

A powder of the soft root is used by Damara women in Namibia as a 'douche' to make them more attractive to men [5095] .

Seeds, cosmetics:

The burned seeds are ground into a powder which is used as a black cosmetic [5095] .

SOCIAL USES - 'RELIGIOUS' USES

Roots, leaves, magic:

The roots especially, but also the leaves, are ascribed by Wolof medicine men in Senegal to have medico-magical properties. Plants, whose roots in the mysteries of magic are deemed to become passive during the wintering, will pass their potentials to the roots of *Ximenia americana* which remain active over this period. For this capacity Wolof medicine-men refer to this plant as 'mother of roots'. It has importance in treating certain psychoses, especially conditions created by evil spirits [2816] .

Leaves, magic:

Pulaar in Senegal ascribe a medico-magical power to the leaf for orchitis and hernia [2816] .

NON-VERTEBRATE POISONS - MOLLUSCA

Leaves, death:

In molluscicidal screening leaves showed 100% mortality of *Bulinus globosus* at 100ppm [644] [2816] .

NON-VERTEBRATE POISONS - ARTHROPODA

Siphonaptera (fleas), livestock pest control, repellent:

The rind is used in southern Africa on sores on domestic animals to keep off fleas .

MEDICINES

Prophylactic, ointments:

The fruit is dried, pounded and made into an ointment which is rubbed onto the severed umbilical cord of the baby [5098] .

MEDICINES - UNSPECIFIED MEDICINAL DISORDERS

Bark, humans:

The bark is ground in bath-water for sick children [1157] .

MEDICINES - ABNORMALITIES

Roots, humans, face, oedemas, inhalers:

For swelling of the face, powdered root mixed with *Maerua angolensis* is inhaled (Senegal) [2816] .

MEDICINES - CIRCULATORY SYSTEM DISORDERS

Bark, humans, heart:

Infusion is remedy for heart [1157] .

Leaves, humans, angina:

Pulaar of Senegal administer leaf-macerate in angina crises [2816] .

MEDICINES - DIGESTIVE SYSTEM DISORDERS

Root bark, humans, intestines, diarrhoea, oral ingestion:

An extract of the root rind can be drunk at the rate of one cupful every two hours (Bally 1938) [5098] [5511] .

Roots, humans, stomach, oral ingestion:

The Himba add finely chopped roots to their food for upset stomachs [5098] .

Roots, fruits, cattle, diarrhoea:

Root-decoction, or of a bruised fruit is given in Zimbabwe to a calf with bloody diarrhoea [2816] .

Branches, humans, laxative, tooth-ache:

In north Nigeria, a decoction of leafy twigs is taken as laxative and mouth wash to relieve toothache [2816] .

Leaves, humans, hernia:

Pulaar in Senegal ascribe a medico-magical power to the leaf for orchitis and hernia [2816] .

Fruits, humans, constipation:

Useful in cases of habitual constipation [623] .

MEDICINES - GENITOURINARY SYSTEM DISORDERS

Bark, humans, kidneys:

Infusion is remedy for kidneys [1157] .

MEDICINES - ILL-DEFINED SYMPTOMS

Roots, humans:

Used in the case of excess blood in the body, indicated by throwing bones or by feeling swollen or feverish. One cup of water boiled with roots is taken two or three times a day [5154] .

MEDICINES - INFECTIONS/INFESTATIONS

Bark, humans, skin, fever:

The bark is rubbed on the skin for fever (somewhere in Africa) [2136] .

Bark, roots, humans, ringworm, external applications:

A mixture of ground bark and root is used as a dressing for ringworm [2136] .

Kernels, humans, influenza, oral ingestion:

Roasted kernels are a remedy against flu in Jul'hoansi children in northeastern Namibia [5088] .

Leaves, cattle, goats, eyes:

Leaves are chewed and spat into the eyes [1304] .

Root, humans, fever:

A cupful of root rind extract can be drunk every two hours (Bally 1938) [5098] [5511] .

Roots, humans, gonorrhoea, oral ingestion:

A decoction of roots is drunk to treat symptoms of gonorrhoea [5095] .

Roots, humans, schistosomiasis, oral ingestion:

Fresh or dried roots are boiled with beans (one root/cup of beans), without salt, until they are well cooked. The porridge is eaten twice a day [5154] .

Root-bark, schistosomiasis, oral ingestion:

Taken for schistosomiasis in Ivory Coast, Burkina Faso, and Nigeria [2816] .

Roots, humans, venereal diseases:

Has medicinal use against venereal disease, and treatment is said to cause vomiting and purging [2816] .

Leaves, humans, fever, anti-diarrhoetic:

A leaf-decoction is taken in Ivory Coast - Burkina Faso as a febrifuge and anti-diarrhoetic [2816] .

MEDICINES - INJURIES

Kernels, humans, wounds, ointments:

The kernels are roasted and ground by the San of northeastern Namibia, to obtain an ointment for wounds [5101] .

Kernels, humans, wounds, external applications:

The roasted seeds are crushed and applied directly to wounds [5088] .

Root bark, burns, external applications:

Dried, roasted and powdered [5095] .

Roots, humans, wounds, external applications:

Roots are burned, then powdered. The powder is smeared as needed as a pain killer for internal and external pains, cuts etc. [5154] .

Seeds, burns, superficial injuries, external applications:

The seeds are burned and ground into a powder which is applied to burns and cuts [5095] .

Leaves, humans, wounds:

Used by Basari of Senegal as a haemostatic, externally as a plaster over wounds and internally in decoction [2816] .

MEDICINES - MENTAL DISORDERS

Roots, humans, sleeping sickness:

The root compounded with root of *Annona chrysophylla* has been used in Nigeria for sleeping sickness [2816] .

MEDICINES - PAIN

Bark, humans, stomach, oral ingestion:

Bark is chewed for stomach ache (Ferreira 1952) [5395] [5794] .

Roots, humans, abdomen, enemas:

When a postnatal woman suffers afterpains, the root is pounded, boiled and used as an enema [5098] .

Roots, humans, external application:

Roots are burned, then powdered. The powder is smeared as needed as a pain killer for internal and external pains, cuts etc. [5154] .

Roots, humans, stomach, oral ingestion:

In Botswana, one half cup of water boiled with roots is taken twice a day for sharp, throbbing stomach pain [5154] .

MEDICINES - POISONINGS

Leaves, humans, snake bites, antidote:

They are applied to snake-bites and other poisonous bites in Gabon [2816] .

MEDICINES - RESPIRATORY SYSTEM DISORDERS

Leaves, humans, coughs, oral ingestion:

The Bushmen chew fresh leaves [5098] .

Roots, humans, lungs, oral ingestion:

The San of northeastern Namibia boil the roots and take the infusion as a remedy for lung ailments [5101] .

Leaves, humans, cough:

Tenda of SE Senegal take the leaves pulped with ground-nuts for cough [2816] .

MEDICINES - SENSORY SYSTEM DISORDERS

Fruit juice, humans, eyes:

Eye conditions are treated with fresh fruit juice [5098] .

MEDICINES - SKIN/SUBCUTANEOUS CELLULAR TISSUE DISORDERS

Bark, root, humans, ulcers, external application:

A mixture of ground bark and root is used as a dressing for ulcers [2136] .

Root bark, boils, external applications:

Root bark is dried, roasted and powdered [5095] .

Seeds, humans, boils, external applications:

The seed, without flesh, is roasted, ground and used as a vesicant on boils and thorns (Herero, Namibia) [5381] .

Bark, mammals, sores, external applications:

In Angola crushed bark is applied to sores on domestic animals [2816] .

Leaves, humans, gargle, astringent:

They are astringent and are used in Zaire in infusion as a gargle [2816] .

Roots, leaves, humans, headache:

Fresh leaves and roots are applied topically for febrile headache, especially for children [2816] .

NUTRITIONAL VALUE

Seeds:

Contain 63.9% lipid [5154] .

ANTINUTRITIONAL FACTORS

Fruits, hydrocyanic acid:

Though commonly consumed as food or as drink there are records of presence of hydrocyanic acid [2816] .

TOXICITY/POISONOUS COMPOUNDS

Seeds, cyanide:

Both seed and oil may be toxic in even moderate quantities due to present of a cyanide-producing principle which occurs in varying amounts depending on location [1142] .

Leaves, hydrocyanic acid:

In Queensland it has been suspected of poisoning stock. The leaf is said to be strongly cyanogenetic, hydrocyanic acid being at its peak in December (mid-summer) but dangerously present throughout the year [2816] .

BIOLOGICAL ACTIVITY

Hypotensively active, antivirally active, cytotoxically inactive, antibacterially inactive [5154] .

Leaves, molluscicides:

In molluscicidal screening leaves showed 100% mortality of *Bulinus globosus* at 100ppm [644] [2816] .

CHEMICAL ANALYSES - MISCELLANEOUS

Seeds:

Contain 62% oil by weight [6467] .

Leaves, stems:

Chemical composition (% dry matter) protein (8.01), fat (1.62), fibre (43.55), carbohydrates (35.18), ash (11.64), silicon (0.11), calcium (1.59), phosphorus (0.143), sodium (0.290) and potassium (1.23) [1382] .

Seeds, Ximenic acid:

Rich in oil containing ximenic acid (Villiers, undated cited in Australia Bureau of Flora and Fauna, 1984) [1609] .

Roots, bark, tannins:

16-17% useful in curing leather. Used in Sudan under the Golo name 'alimu' as tanning agent producing a soft reddish coloured leather [1142] [2391] [2816] .

Leaves, cyanogenetic material:

African material reported to contain 380-460 mg per 100gm dry weight of cyanogenetic material, the principal one being a heteroside, sambunigroside [2816] .

Testa, fat content:

5-9% [2816] .

Oils, fatty acids content:

61% oleic, 15% cerotic, 14% ximenic, 7% linoleic, 1% stearic and traces of other substances. Saponin, alkaloid and cyanogenetic glycoside are reported absent, however, other reports claim the presence of cyanogenetic substances [2816] .

Kernel, other analysis:

The whole kernel holds 18% protein and 13% carbohydrate and after expression of the oil leaving a concentration at about 5%, these become 39-42% and 31-38% respectively of the residue meal [2816] .

Other analysis:

Petroleum extraction yields (62%) an oil with iodine value., 85 and fatty acids composition; oleic 49% total (saturated and mono-saturated) 24C acids, 5%; 26C acids, 7%; 28C acids, 14%; 30C acids, 5.5%; the acetylenic acid. Roots rich in acetylenic fatty acids [1142] [2816] .

CONSTRAINTS - MISCELLANEOUS

Presence of cyanogenetic glycosides in fruit pulp, kernel, oil and leaves is a major constraint to its development [1382] .

Owing to non-saponifiable matter, the oil is difficult to extract for uses such as lubrication or soap and it probably cannot compete with other oils. Furthermore, the plant is parasitic and little is known regarding cultivation, pest and diseases and yield potential. Also individual trees vary in their fruiting times which could be disadvantageous if synchrony in phenology is desired [1382] .

Rubbery material in the oil (especially when expelled) makes it difficult to use; and it is a non-drying oil [1142] . Since the trunk and branches rarely exceed 10 cm diameter, the wood is of little economic importance except for burning or to make charcoal [2816] .

RAINFALL

250-1,270 mm [1382] [1382] .

Namibia:

100 mm and above [5121] .

More than 500 mm [2391] .

400(600)- >1100 mm [1523] .

ALTITUDE

Australia:

50-1950 m a.s.l [1609] .

Southern Africa:

var. americana - 30-1646 m.a.s.l. Var. microphylla - 300-1980 m.a.s.l. [5104] .

Kenya:

0-2000 m a.s.l [1597] [2774] .

Tanzania:

900-2000 m a.s.l [5054] .

TOPOGRAPHY/SITES

Stony slopes with scattered bush [1279] .

In Australia, occurs along the coast on sand dunes, in forest and behind mangroves; inland in loam or on quartzite hills [1609] .

VEGETATION

Namibia:

Open woodland, mopane woodland, vegetation dominated by Combretum and Acacia spp [5123] .

In shrubland and mixed forests [1609] .

Wooded grassland, deciduous and wasted bushland [1362] .

Mainly semi-arid bushland but many types of dry woodland, bushland and riverine and coastal thickets. Its abundance is generally low in vegetation types where it grows naturally [1382] .

Forms thickets along coast [1188] .

Of fringing forest, savanna forest to dry savanna and in coastal scrub [2816] .

In wooded grassland, deciduous and coastal bushland, dry and moist woodlands [5054] .

FLOWERING/FRUITING/SEED SET

Flowering, Namibia:

mostly October and November [5121] .

Fruiting, Namibia:

November to March, mostly [5121] .

Flowering/fruiting:

Varies from locality to locality and from tree to tree, but it flowers and fruits throughout the year. Flowering and fruiting does not appear to be governed by seasonality in climates [1382] .

Flowering/fruiting, Tanzania:

Throughout the year [2774] .

GERMINATION

Very good and fast from fresh seed [2774] .

VEGETATIVE GROWTH

In good sites fruit is produced three years after sowing .

ASSOCIATED INSECTS

Lepidoptera:

Butterfly larvae feed on the leaves [5177] .

SEED WEIGHT

1400 seeds/Kg [1382] .

About 1400 seeds per Kg [2837] .

700-1400 seeds per Kg [2774] .

SEED STORAGE

Can be stored for a short period (only 3 months) [2774] .

PROPAGATION FROM SEED

Regenerates naturally from seeds [1382] .

HARVESTING

Ripe fruits are picked from tree as fallen ones are unsuitable for eating owing to fast perishability rate [1382] .

PRODUCTION

Fruits have a commercial value of over N\$5,000.00 per ton in Namibia. The local people collect the fruit, remove the kernels and dry them. In 2004 about 400 litres of oil was shipped to Europe, where the product is processed into cosmetics [6465] .

RESEARCH NEEDS

Research into toxicity should be the priority; non-toxic cultivars should be selected for and the quality and marketability of products from these should be assessed [1382] .

The variability of the plant in respect of palatability, medicinal application, and its toxic or non-toxic conditions indicates the need for further investigation [2816] .

SEED SUPPLIERS

Kumar international, Ajitmal 206121, Etawah, Uttar Pradesh, India [1382] .

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