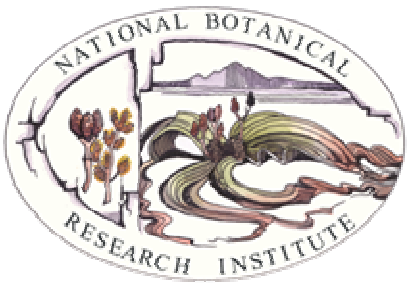

This report was generated from the SEPASAL database (www.kew.org/ceb/sepasal) in August 2007. This database is freely available to members of the public.

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which has been updating the information on Namibian species from Namibian and southern African literature and unpublished sources.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

Cyperus esculentus L.

Family: CYPERACEAE

Synonyms

Cyperus nervoso-striatus Turrill

Vernacular names

Afrikaans (Namibia)	geeluintjie [5083], hoenderuitjie [5098], uintjie [5098]
Afrikaans (South Africa)	geeluitjie [1340] [5173] [5303], hoenderuintjie [1340] [5303], patrysuitjie [5303]
Damara/Nama (Namibia)	!han [5098]
English (Africa)	earth almond [1340], edible galingale [1340], nut grass [1340], water grass [1340]
English (East Africa) [rhizomes]	tiger nut [1340]
English (Namibia)	earth almond [5098], nut grass [5098]
English (South Africa)	yellow nutsedge [5173] [5303]
English (Zimbabwe)	sedge [2506], water grass [2506], yellow nut grass [2506]
Khukh (Namibia)	!hanni [5083]
Otjiherero (Namibia)	okatjako [5083] [5098]
Shona (Southern Africa)	chufa [1340]
Shona (Zimbabwe)	pfende [2506]
Unknown (France)	souchet sultan [1340]
Unknown (Mozambique)	chimbwe-chimbwe [5480]
Zulu (South Africa)	indawo [1340] [5303], insikane [1340] [5303]
unknown (East Africa)	souchet comestible [1340]

Partial distribution

Plant origin	Continent	Region	Botanical country
Native	Africa	Northeast Tropical Africa	Chad
		South Tropical Africa	Mozambique [5480], Zambia [5481], Zimbabwe [5419]
		Southern Africa	Botswana [5104] [5700], Cape Province [5104], Lesotho [5104], Namibia [5104] [5149] [5183], Orange Free State [5104], Swaziland [5104] [5452], Transvaal [5104]

		West Tropical Africa	Burkina, Ghana, Ivory Coast, Mali, Mauritania, Niger, Nigeria, Senegal, Sierre Leone, The Gambia, Togo
		West-Central Tropical Africa	Cameroon
		Western Indian Ocean	Madagascar
.			
Introduced	Europe	Middle Europe	Netherlands [6559]
.			
Status Unknown	Africa	Southern Africa	
	Northern America	Southwestern U.S.A.	California

ISO countries: South Africa [5104]

Descriptors

Category	Descriptors and states
DESCRIPTION	Herb [5104]; Aquatic [5123]; Erect [5123]; Rhizomatous [1340]; Perennial [5104] [5303] [6544]; Stoloniferous [5123] [6544]; Aromatic - 'roots' [2506]; Plant Height 0.12-1 m [5104]
CLIMATE	Marked Dry Season [5104]
SOILS	Limestone Parent Material [5123]; Alluvial Soils [5123]
HABITAT	Woodland [5123]; Grassland/Forb-Land [6544]; Watercourses [5123]; Anthropogenic Landscapes [5173]; Vlei/Dambo/Seasonally Flooded Grassland [5123] [6544]; Altitude 0-2100 m a.s.l. [5104] [6544]
PRODUCTION AND VALUE	Wild Plants Utilised [1340] [2506]; Traded Locally [1340]; Undergoing Cultivation Trials [1340]
CONSTRAINTS	Weed [5123] [5191]; Garden Weed [6544]
FURTHER DATA SOURCES	Botanical Illustration [1171] [2506] [6544] [6559]; Additional References [37] [5308] [5897] [5955]; Botanical Photograph [5173] [5303] [6559]; Databases [5123]; Grid Map [5123] [5303]
CHEMICAL ANALYSES	Unspecified Lipids - 'roots' [1340]; Unspecified Sugars - 'roots' [1340]; Aromatic Acids - 'roots' [1340]; Nutritional Analyses - 'roots' [1340] [2506]; Phytosterols - stems [1340]; Phytosterols - leaves [1340]; Phytosterols - 'roots' [1340]

Uses

Major use	Use group	Specific uses
FOOD	Stems	vegetables, raw; vegetables; famine food
	'Roots'	tubers/tubercles, raw [2506] [2514] [5098] [5303]; rhizomes, dairy/dairy-like preparations [1340]; rhizomes, raw [1340]; rhizomes, famine food [1171] [1340]; rhizomes, vegetable dishes [1340]; rhizomes, vegetables [1171] [1340]; rhizomes, coffee substitutes [1340]; tubers/tubercles, vegetables [2506]; tubers/tubercles, coffee substitutes [2506] [5098]; tubers/tubercles, vegetable dishes [5098]; tubers/tubercles, porridges [5098]
FOOD ADDITIVES	Entire Plant	vegetable dishes, flavourings [2506]; vegetable dishes, tenderisers [2506]
MEDICINES	Unspecified Medicinal Disorders	humans [1340]

Digestive System Disorders	tubers/tubercles, humans, stomachic [1340]; tubers/tubercles, humans, indigestion, oral ingestion [1340] [2506]; tubers/tubercles, humans, colic [5098]; tubers/tubercles, humans, flatulence [5098]
Genitourinary System Disorders	rhizomes, humans, menstruation, oral ingestion [1340]
Mental Disorders	tubers/tubercles, humans, sedative [1340]
Nutritional Disorders	tubers/tubercles, humans, tonic [1340]

Picture

None recorded

Notes

DISTRIBUTION

Mozambique:
Tete and Zambezia Provinces [5480] .
Namibia:
Grootfontein, Otjiwarongo, Windhoek, Gobabis, Gibeon and Bethanien districts [5183] .
South Africa:
Limpopo, Northwest, Gauteng, Mpumalanga, Free State, KwaZulu/Natal, Northern Cape, Western Cape and Eastern Cape Provinces [5104] .
Var. esculentus dominates in Africa and southern Europe, var. leptostachyus is common in both the Old and New World. Two varieties, var. macrostachyus and var. heermannii, have been introduced to the Netherlands. Var. esculentus, var. leptostachyus, var. macrostachyus and var. heermannii occur in the Americas as well as Europe [6559] .

ORIGIN/DOMESTICATION

Europe:
The occurrence of var. leptostachyus is probably the result of an earlier introduction [6559] .
Netherlands:
Var. macrostachyus and var. heermannii have been introduced [6559] .

DESCRIPTION

Height:
0.12-1 m [5104] .
Height:
Up to 0.65 m [5303] .
Inflorescence:
Primary inflorescence-bracts 3-9, leafy, erect or spreading; the largest 30-200 mm long and 2-9 mm wide. Spikes 10-30 mm long and 100-300 mm wide, with spreading spikelets [6544] .
Leaves:
Largest leaf blades 100-300 mm long and 3-9 mm wide, flat, scabrid on margin and major ribs. Leaf sheaths green to reddish brown, rarely blackish [6544] .
Life form:
Cyperoid, geophyte, mesophyte [5104] .
Odour:
The tubers are aromatic and pungent [2506] .
Roots:
Stolons to about 150 mm long and 0.5-1.5 mm thick, covered with brown to blackish scales and ending in a blackish tuber 3-8 mm in diameter [6544] .
Seeds:

Nutlet 1.3-1.5 mm long and 0.6-0.7 mm wide, elliptic, triangular, grey and shiny. Surface with minute isodiametric cells [6544] .
Stems:
Culms 150-700 mm long, and 1-5 mm thick, triangular, glabrous, with many 3-crowded leaves near the base [6544] .

IDENTIFICATION

This species is separated from other stoloniferous species carrying tubers by its rust-coloured, obtuse spikelets and the many-nerved glumes. The nerves reach the margin much more closely than they do in related species [6544] .

FOOD - 'ROOTS'

Rhizomes, dairylike preparations, raw, famine food:
The rhizomes are used for chewing, in preparing the white, jelly-like, tiger nut milk and as a famine food [1340] .
Rhizomes, vegetable dishes:
In West Africa it is used as a sweetmeat (Irvine 1952) [1340] .
Rhizomes, vegetables:
The tuber, which is sweet and has a nutty flavour (Medsger 1939), is used as a vegetable in southern Europe and northern and southern Africa [1340] .
Roots, raw:
In Natal (South Africa) the tubers are edible, sweet and nutty [5303] .
Tuber, vegetables:
The tuber is sweet, has a nutty flavour and is used as a vegetable in southern Africa [1171] .
Tubers, coffee substitutes:
After roasting and grinding it is used as a substitute for coffee and cocoa (Tschirch 1917) [1340] [2506] .
Tubers, porridge:
The tubercles, pounded and stirred with water into a paste, to which milk and honey is added, can be mixed into maize or other porridge to produce a fortifying, resistance-boosting and stamina-building dish [5098] .
Tubers, raw, vegetable dishes:
As veld food in Namibia it can be eaten raw or roasted [5098] .

FOOD ADDITIVES - ENTIRE PLANT

Flavouring, tenderisers:
The whole plant is chopped up small and burnt. The ashes are placed in a sieve. Traditionally this was a calabash pierced in several places with a layer of grass inside. Water is dripped slowly through the ash and collected in a container, kept ready for use. The potash is used for softening and flavouring green leaves [2506] .

MEDICINES - UNSPECIFIED MEDICINAL DISORDERS

Humans:
The Chinese have used the plant as a stimulant [1340] .

MEDICINES - DIGESTIVE SYSTEM DISORDERS

Tubers, humans, indigestion, oral ingestion:
The Zulu chew the root for the relief of indigestion, especially when this condition is accompanied by foul breath. Also chewed raw in Zimbabwe to relieve indigestion [1340] [2506] .

MEDICINES - GENITOURINARY SYSTEM DISORDERS

Rhizomes, humans, menstruation, oral ingestion:
A Zulu girl, with a view to hastening the inception of menstruation, eats porridge in which a handful of boiled root has been mashed (Bryant 1909) [1340] .

CHEMICAL ANALYSES - MISCELLANEOUS

Rhizomes, organic acids, fatty acids:
The tuber contains palmitic, myristic, oleic and linoleic acids (Adriaense 1931) [1340] .
Rhizomes, sucrose, starch, oil:
12-20% of sucrose, 25-30% starch and 27.1-28.9% of oil [1340] .
Tuber, unspecified lipids:
Odourless, non-drying oil can be obtained from the tuber by cold expression. Among its constituents are palmitic, myristic, oleic and linoleic acids (Adriaense 1931) [1340] .

WEED PROBLEMS CAUSED

Alabama, control methods:
A series of greenhouse studies examined the effectiveness of PRE- and POST-applied sulfentrazone (formerly known as F-6285, a herbicide) in controlling purple and yellow nutsedge as influenced by selective tissue exposure. C14-sulfentrazone was readily absorbed by the roots and translocated to the foliage of both species in hydroponic culture [6560] .
North Carolina, control methods:
Best reduction in yellow and purple nutsedge growth with pyrithiobac sodium was obtained with soil-incorporated treatments [6561] .
South Africa:
Yellow nut grass could be entirely eradicated mechanically during December and January by thorough cultivation with the rotary hoe or plough and harrow and repeating the process once again after a lapse of two or three weeks [6558] .
Southern Africa:
A weed of gardens and shambas [6544] .

CONSTRAINTS - MISCELLANEOUS

A weed of gardens [6544] .
Tubers have greater resistance to herbicides than is usual for herbaceous plants [5303] .

ALTITUDE

East Africa:
From sea level to 2100 m [6544] .
Southern Africa:
5-2100 m [5104] .

SOILS

Namibia:
Alluvial soils and calcrete [5123] .

FLOWERING/FRUITING/SEED SET

Flowering, South Africa:
In the Transvaal during summer [5173] .
Flowering, South Africa:
July-May [5303] .

CYTOLOGY

For the genus x = 5, 8 (6, 7, 9, 13) (high aneuploids, high polyploidy) [5150] .

TRADE

East Africa:

The underground stem is sold under the name of 'tiger nut' in Gold Coast markets [1340] .

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Updated for southern Africa by E. Irish, checked by C. Mannheimer; SEPASAL Namibia, National Botanical Research Institute. February 2007 .

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