

Rottboellia cochinchinensis  简体中文

System: Terrestrial

正體中文

Kingdom	Phylum	Class	Order	Family
Plantae	Magnoliophyta	Liliopsida	Cyperales	Poaceae

Common name konda panookoo (English, India), sagisi (English, Philippines), girum nagei (English, Philippines), anguigay (English, Philippines), barsali (English, India), paja peluda (English, Venezuela), capim-camalote (English, Portugal), doekoet kikisian (English, Indonesia), bandjangan (English, Indonesia), prickle grass (English), jointed grass (English), guinea-fowl grass (English), corn grass (English), bura (English, India), Raoul grass (English), dholu (English, India), kokoma grass (English), gaho (English, Philippines), bukal (English, Philippines), itchgrass (English), annarai (English, Philippines), Kelly grass (English), itch grass (English), sancarana (English, Cuba), swooate (English, India), tsunoaiashi (Japanese), herbe queue-de-rat (French), cebada fina (Spanish), rice grass (English), caminadora (Spanish), sugarcane weed (English), shamva grass (English), graminea corredora (Spanish), lisofya (English)

Synonym *Manisuris exaltata* , (L. f.) Kuntze
Rottboellia exaltata , L. f., nom. illeg
Stegosia cochinchinensis , Lour
Aegilops exaltata , L.
Ophiurus appendiculatus , Steud.
Rottboellia arundinacea , Hochst. ex A. Rich
Rottboellia denudata , Steud.
Rottboellia setosa , J.S. Presl ex C.B. Presl
Stegosia exaltata , Nash

Similar species *Sorghum halepense*

Summary *Rottboellia cochinchinensis* is an erect annual grass that reaches heights of 4 metres. It is a weed of warm-season crops around the world, preferring tropical and subtropical climates. It grows along roadsides and in other open, well-drained sites. *R. cochinchinensis* is an aggressive weed, considered to be one of the 12 worst weeds that infest sugarcane (*Saccharum officinarum*) in the world. It is also a very competitive weed with maize crops. *R. cochinchinensis* has irritating hairs on its stem which makes it difficult to control it manually in small-scale farms. It is tolerant to most herbicides that are applied in cotton and maize fields. Management and removal of *R. cochinchinensis* requires the use of many man hours and the application of several techniques to ensure control.



[view this species on IUCN Red List](#)

Species Description

The erect, profusely tillering annual grass *R. cochinchinensis* is characterised by pale, green-coloured foliage, brace roots near the base of the plant, a cylindrical spikelet seedhead and siliceous hairs on the leaf sheath that can penetrate and irritate the skin. (Strahan *et al.* 2000a; 2000b).

R. cochinchinensis grows up to a height of 4m or more. The inflorescence is a cylindrical raceme that is 3 - 15cm long. The floral units consist of a sessile spikelet, pedicellate spikelet and internode. The pedicel is fused to the swollen floral internode. The spikelets are awnless, 3.5 - 6mm long, and 2.5 - 3mm wide. The floral units separate and fall as soon as they mature, from the top of the raceme downwards (NAPPO, 2003).

Lifecycle Stages

Smith *et al.* (2001) state that in Costa Rica, "*Rottboellia cochinchinensis* life cycle is synchronized with the cropping season because its seed germinates and emerges in response to soil moisture and exposure to light after tillage prior to planting (Thomas 1970b ; Thomas and Allison 1975). Seeds do not germinate in the dry fallow season, although in practice, senescing *R. cochinchinensis* plants that remain after crop harvest may continue to shed seed during the fallow season. Preventing seed-set within crops should, in theory, substantially reduce *R. cochinchinensis* populations, since this plant's seed bank is short lived, approximately 3 to 5 yr (Rojas *et al.* 1993b)."

Uses

Ishizuka (2001) states that, "In a village near Lampang, in the northern part of Thailand *R. cochinchinensis*, injurious due to the thorns on the stems, is being tested in crop rotation as one of three crops in a large part of the village arable land. Because of its relatively fast and vigorous growth, up to 2-3m high in approximately 3 months, the weeds contribute to the retention of soil water and, in the long run, supply organic matter to soil as green manure, as the weed is flattened to the soil surface at harvest time and left there. At that time, the soil surface was covered completely by the harvested weed. It was reported that *R. Cochinchinensis* has also action of allelopathy. At the expense of one crop cultivation, the species of weed is deliberately seeded. This is one example of the collaboration of local traditional technologies with new ones (Suwannamek U & Chinawong S, personal communication)."

Habitat Description

NAPPO (2003) state that, "*Rottboellia cochinchinensis* is a weed of warm-season crops in a variety of habitats around the world, preferring tropical and subtropical climates. It also grows along roadsides and in other open, well-drained sites and is an important species in old field succession but it can be found in wet places, and even in shallow water. It survives in habitats with full sun, moderate shade, or nearly the full shade of thickets and forests. *R. cochinchinensis* is most troublesome between 800 and 1300m in elevation. Rainfall is a main limiting factor below 1300 m. Above this elevation, temperature is the main limiting factor (Holm *et al.* 1977).

Reproduction

Smith *et al.* (2001) state that, "*Rottboellia cochinchinensis* seeds are stimulated to germinate by exposure to light and moisture that occurs upon sowing or tillage. Within each season, several further flushes of *R. cochinchinensis* seedlings may germinate and emerge, especially after soil disturbance or when there are gaps in the canopy (e.g., on weeding or herbicide application).\" Smith *et al.* (2001) continue that, "*R. cochinchinensis* seed floats easily, and irrigation or floodwater is known to be a source of contamination for other fields (Mercado 1978); this is an aspect worthy of consideration for those managing *R. cochinchinensis*. In addition, the seed is very palatable to some birds, rodents, and insects. In studies of seed-feeding birds in the United States, 26 of 345 birds (4 out of 15 species) collected were found to have *R. cochinchinensis* seeds in their guts (Aison *et al.* 1984). In feeding trials, only about 0.3% of the seed survived passage through the gut. Similarly, Thomas (1970a) found that guinea fowl, mongoose, and cattle-but not smaller birds and mammals-could disperse *R. cochinchinensis* seed in Zimbabwe. This evidence from other regions indicates that local fauna could play a major role in destroying *R. cochinchinensis* seed and that they also contribute to local dispersal."



General Impacts

Alves (2003) state that, "*Rottboellia cochinchinensis* is an aggressive weed, considered to be one of the 12 worst weeds that infest sugarcane (*Saccharum officinarum* L.) in the world because it obstructs closure of crop rows when densities are above 10 plants m⁻² (Holm *et al.* 1977 ; Mercado 1978). According to Cepero and Rodriguez (1983) , Millhollon (1982 , 1992), and Morales and Fernandes (1985) , this species is one of the main invaders of sugarcane in Argentina, Cuba, India, Hawai'i, Mauritius, Puerto Rico, Trinidad, and the United States, where losses can reach 20 to 70%, depending on the cultivar, cutting cycle, and local ecological conditions." The authors continue to state that, "The appearance and dispersal of *R. cochinchinensis* worries researchers and sugarcane producers in areas that do not yet have *R. cochinchinensis* because the weed might spread and adapt to their conditions. Because itchgrass biotypes have not been confirmed, the same kind of control is used in every region."

Chikoye *et al.* (2000) state that, "*R. cochinchinensis* is a very competitive weed with crops particularly maize and it has irritating hairs on its stem which makes it difficult to control manually in small-scale farms. It is also tolerant to most herbicides that are applied in cotton and maize fields."

Strahan *et al.* (2000a) states that, "*R. cochinchinensis* is a prolific seed producer with seeds that germinate throughout the growing season (Harger *et al.* 1980 ; Millhollon 1965 ; Pamplona and Mercado 1982), making it difficult to manage. The weed is very competitive, and over a 3-yr period it may reach densities that could prevent crop harvest (Harger *et al.* 1982). Although relatively shade intolerant, *R. cochinchinensis* has the capacity for high photosynthetic activity and growth rates when exposed to light (Patterson 1979). Although adapted to the tropics, *R. cochinchinensis* has the ability to grow, flower, and set seed under a wide range of environmental conditions, reaching 75 to 100% of its growth potential under the temperature regimes found in the Gulf Coast states, the lower Midwest, the South Atlantic states, and the Southwest (Patterson *et al.* 1979)."

Strahan *et al.* (2000a) states that, "The competitiveness of *R. cochinchinensis* may be related to its ability to extract nutrients from soil more efficiently than *Z. mays* (El-Shafey *et al.* 1975)."

Strahan *et al.* (2000b) states that, "*R. cochinchinensis* is rated among the worst weeds in the world and is considered a serious problem in soybean (*Glycine max* (L.) Merr.), corn, cotton (*Gossypium hirsutum* L.), peanut (*Arachis hypogaea* L.), upland rice (*Oryza sativa* L.), and other crops in tropical regions of the world (Holm *et al.* 1977). In Louisiana, *R. cochinchinensis*, referred to as raoulgrass, is a major weed problem in sugarcane (*Saccharum* spp.), soybean, and corn (Millhollon 1965)."

Management Info

For details on management of this species including preventative, mechanical, biological, chemical and integrated control please read our pdf file on [management information](#).

For comprehensive information on management please see also [Valverde, B. E., 2003. Progress on *Rottboellia cochinchinensis* management.](#)

Principal source: Smith *et al.* 2001. *Rottboellia cochinchinensis*

Compiler: National Biological Information Infrastructure (NBII) & IUCN/SSC Invasive Species Specialist Group (ISSG)

Review: Expert review underway

Publication date: 2005-10-18

ALIEN RANGE

[1] ARGENTINA

[7] BRAZIL

[1] CENTRAL AMERICA

[2] COSTA RICA

[1] DOMINICAN REPUBLIC

[1] BOLIVIA

[1] CAYMAN ISLANDS

[1] COLOMBIA

[1] CUBA

[1] ECUADOR

[1] GUADELOUPE
 [1] HONDURAS
 [1] MARTINIQUE
 [1] PANAMA
 [1] PUERTO RICO
 [1] SAINT BARTHELEMY
 [1] SWAZILAND
 [10] UNITED STATES

[1] GUATEMALA
 [1] JAMAICA
 [1] MEXICO
 [1] PERU
 [1] REUNION
 [1] SAINT MARTIN (FRENCH PART)
 [1] TRINIDAD AND TOBAGO
 [1] VENEZUELA

BIBLIOGRAPHY

23 references found for *Rottboellia cochinchinensis*

Management information

Alves, P. L. 2003. Identification and characterization of different accessions of itchgrass (*Rottboellia cochinchinensis*). *Weed Science* 51: 177-180.

Summary: This page contains information on common names, description, habitat, propagation, native range, impacts, and control measures.

Bowen, B., K. Johnson, S. Franklin, G. Call, and M. Webber. 2002. Invasive Exotic Pest Plants in Tennessee. *Journal of the Tennessee Academy of Science* 77(2): 45-48.

Summary: This page contains information on common names, description, habitat, propagation, native range, impacts, and control measures.

Chikoye, D., V. M. Manyong, and F. Ekeleme. 2000. Characteristics of speargrass (*Imperata cylindrica*) dominated fields in West Africa: crops, soil properties, farmer perceptions and management strategies. *Crop Protection* 19: 481-487.

Summary: This page contains information on common names, description, habitat, propagation, native range, impacts, and control measures.

Ishizuka, K. 2001. Roles of the new journal. *Weed Biology and Management* 1: 15-19.

Summary: This page contains information on common names, description, habitat, propagation, native range, impacts, and control measures.

[Kadir, J., Ahmad, A., Undated. Potential of *Drechslera longirostrata* As Bioherbicide For Itch grass](#)

Summary: Available from:

<http://64.233.187.104/search?q=cache:D5SFEITgxuUJ:unesco.biotech.or.th/file%25207.doc+Rottboellia+cochinchinensis+protected+areas&hl=en> [Accessed 10 September 2004]

[NAPPO \(North American Plant Protection Organization\). 2003. Pest Fact Sheet: *Rottboellia cochinchinensis* \(Lour.\) Clayton. NAPPO-PRA / Grains Panel Pest Fact Sheet.](#)

Summary: This page contains information on common names, description, habitat, propagation, native range, impacts, and control measures.

Available from: <http://www.nappon.org/PRA-sheets/Rottboelliacoichinchinensis.pdf> [Accessed 13 August 2004]

Pallewatta, N., J.K. Reaser & A. Gutierrez (eds.). 2003. Prevention and Management of Invasive Alien Species: Proceedings of a Workshop on Forging Cooperation throughout South and Southeast Asia. Global Invasive Species Programme, Cape Town, South Africa.

[PIER \(Pacific Island Ecosystems at Risk\) 2003. *Rottboellia cochinchinensis*](#)

Summary: This page contains information on native range, common names, and description.

Available from: http://www.hear.org/pier/species/rottboellia_cochinchinensis.htm [Accessed 13 August 2004]

[RWC-PRISM, Project and Research Information System Module., 2002. Integrated control of itchgrass, *Rottboellia cochinchinensis*](#)

Summary: Available from: <http://www.wisard.org/rwc/shared/asp/projectssummary.asp?Kennummer=7770> [Accessed 19 September 2004]

Smith, M. C., B. E. Valverde, and A. Merayo. 2001. Integrated management of itchgrass in a corn cropping system: modeling the effect of control tactics. *Weed Science* 49: 123-134.

Summary: This page contains information on common names, description, habitat, propagation, native range, impacts, and control measures.

Smith, M. C., R. H. Reeder, and M. B. Thomas. 1997. A model to determine the potential for biological control of *Rottboellia cochinchinensis* with the head smut *Sporisorium ophiuri*. *Journal of Applied Ecology* 34: 388-398.

Summary: This page contains information on common names, description, habitat, propagation, native range, impacts, and control measures.

Strahan, R. E., J. L. Griffin, D. B. Reynolds, and D. K. Miller. 2000a. Interference between *Rottboellia cochinchinensis* and *Zea mays*. *Weed Science* 48:205-211

Summary: This page contains information on common names, description, habitat, propagation, native range, impacts, and control measures.

Strahan, R. E., J. L. Griffin, D. L. Jordan, and D. K. Miller. 2000b. Influence of adjuvants on Itchgrass (*Rottboellia cochinesis*) control in Corn (*Zea mays*) with Nicosulfuron and Primosulfuron. *Weed Technology* 14: 66-71.

Summary: This page contains information on common names, description, habitat, propagation, native range, impacts, and control measures.

Swaziland s Alien Plants Database., Undated. *Rottboellia cochinchinensis*

Summary: A database of Swaziland s alien plant species.

[Valverde, B. E., 2003. Progress on *Rottboellia cochinchinensis* management. In *Weed Management for Developing Countries Addendum 1 \(Ed\) by R. Labrada. Food And Agriculture Organisation Of The United Nations \(FAO\) Rome.*](#)

Summary: Available from: http://www.fao.org/documents/show_cdr.asp?url_file=/DOCREP/006/Y5031E/y5031e07.htm [Accessed 19 May 2005]

Global Invasive Species Database (GISD) 2024. Species profile *Rottboellia cochinchinensis*. Available from: <https://www.iucngisd.org/gisd/species.php?sc=772> [Accessed 19 September 2024]



GLOBAL INVASIVE SPECIES DATABASE

FULL ACCOUNT FOR: *Rottboellia cochinchinensis*

[Varnham, K. 2006. Non-native species in UK Overseas Territories: a review. JNCC Report 372. Peterborough: United Kingdom.](#)

Summary: This database compiles information on alien species from British Overseas Territories.

Available from: <http://www.jncc.gov.uk/page-3660> [Accessed 10 November 2009]

General information

[Centre des ressources biologiques. Plantes tropicales. INRA-CIRAD. 2007.](#)

Summary: Available from: <http://collections.antilles.inra.fr/> [Accessed 31 March 2008]

[CONABIO. 2008. Sistema de informaci3n sobre especies invasoras en M3xico. Especies invasoras - Plantas. Comisi3n Nacional para el Conocimiento y Uso de la Biodiversidad. Fecha de acceso.](#)

Summary: English:

The species list sheet for the Mexican information system on invasive species currently provides information related to Scientific names, family, group and common names, as well as habitat, status of invasion in Mexico, pathways of introduction and links to other specialised websites. Some of the higher risk species already have a direct link to the alert page. It is important to notice that these lists are constantly being updated, please refer to the main page (<http://www.conabio.gob.mx/invasoras/index.php/Portada>), under the section Novedades for information on updates.

Invasive species - Plants is available from: http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Plantas [Accessed 30 July 2008]

Spanish:

La lista de especies del Sistema de informaci3n sobre especies invasoras de M3xico cuenta actualmente con informaci3n acerca de nombre cient3fico, familia, grupo y nombre com3n, as3 como h3bitat, estado de la invasi3n en M3xico, rutas de introducci3n y ligas a otros sitios especializados. Algunas de las especies de mayor riesgo ya tienen una liga directa a la p3gina de alertas. Es importante resaltar que estas listas se encuentran en constante proceso de actualizaci3n, por favor consulte la portada (<http://www.conabio.gob.mx/invasoras/index.php/Portada>), en la secci3n novedades, para conocer los cambios.

Especies invasoras - Plantas is available from: http://www.conabio.gob.mx/invasoras/index.php/Especies_invasoras_-_Plantas [Accessed 30 July 2008]

[Conservatoire Botanique National De Mascarin \(BOULLET V. coord.\) 2007. - Rottboellia cochinchinensis Index de la flore vasculaire de la R3union \(Trach3ophytes\) : statuts, menaces et protections. - Version 2007.1](#)

Summary: Base de donn3es sur la flore de la R3union. De nombreuses informations tr3s utiles.

Available from: <http://flore.cbnm.org/index2.php?page=taxon&num=fb3a30a2e3e8abdcfb63f0aaaadb06e4> [Accessed 9 April 2008]

[Fournet, J. 2002. Flore illustr3e des phan3rogames de guadeloupe et de Martinique. CIRAD-Gondwana editions.](#)

[ITIS \(Integrated Taxonomic Information System\). 2004. Online Database Rottboellia cochinchinensis.](#)

Summary: An online database that provides taxonomic information, common names, synonyms and geographical jurisdiction of a species. In addition links are provided to retrieve biological records and collection information from the Global Biodiversity Information Facility (GBIF) Data Portal and bioscience articles from BioOne journals.

Available from: http://www.itis.gov/servlet/SingleRpt/SingleRpt?search_topic=TSN&search_value=504836 [Accessed March 2005]

[USDA-GRIN \(Germplasm Resources Information Network\). 2004. Rottboellia cochinchinensis. National Genetic Resources Program \[Online Database\] National Germplasm Resources Laboratory, Beltsville, Maryland.](#)

Summary: Information on common names, synonyms, and the distributional range of species.

Available from: http://www.ars-grin.gov/cgi-bin/npgs/html/tax_search.pl?Rottboellia+cochinchinensis [Accessed 13 August 2004]

[USDA-NRCS \(Natural Resource Conservation Service\). 2004. Rottboellia cochinchinensis. The PLANTS Database Version 3.5 \[Online Database\] National Plant Data Center, Baton Rouge, LA.](#)

Summary: Available from:

<http://plants.usda.gov/java/nameSearch?mode=Scientific+Name&keywordquery=Rottboellia+cochinchinensis&go.x=8&go.y=10> [Accessed 13 August 2005]