

Dioscorea batatas (*Dioscorea polystachya*)

Chinese yam

Introduction

The genus *Dioscorea* includes more than 600 species worldwide in tropical and temperate regions. According to early publications of Chinese flora, 49 species are distributed in China; however, in the updated versions, there are 53 species (listed in the next section). *Dioscorea* is a genus of great economic value as an important food plant. Some species are also resources for the pharmaceutical industry^{[28][29]}.



Leaves of *Dioscorea batatas*.

Species of *Dioscorea* in China

Scientific Name	Scientific Name
<i>D. alata</i> L.	<i>D. kamoensis</i> Kunth
<i>D. althaeoides</i> R. Knuth	<i>D. linearicordata</i> Prain et Burkill
<i>D. aspersa</i> Prain et Burkill	<i>D. martini</i> Prain et Burkill
<i>D. banzuana</i> Pêi et C. T. Ting	<i>D. melanophyma</i> Prain et Burkill
<i>D. benthamii</i> Prain et Burkill	<i>D. menglaensis</i> H. Li [†]
<i>D. bicolor</i> Prain et Burkill	<i>D. nipponica</i> Makino
<i>D. biformifolia</i> Pêi et C. T. Ting	<i>D. nitens</i> Prain et Burkill
<i>D. birmanica</i> Prain et Burkill [†]	<i>D. panthaica</i> Prain et Burkill
<i>D. bulbifera</i> L.	<i>D. pentaphylla</i> L.
<i>D. chingii</i> Prain et Burkill	<i>D. persimilis</i> Prain et Burkill
<i>D. cirrhosa</i> Loar.	<i>D. poilanei</i> Prain et Burkill
<i>D. collettii</i> Hook. f.	<i>D. polystachya</i> Turczaninow [‡]
<i>D. cumingii</i> Prain et Burkill [†]	<i>D. scortechinii</i> Prain et Burkill var. <i>parviflora</i>
<i>D. decipiens</i> Hook. f.	Prain et Burkill
<i>D. delavayi</i> Franchet [‡]	<i>D. simulans</i> Prain et Burkill
<i>D. deltoidea</i> Wall.	<i>D. sinoparviflora</i> C. T. Ting [‡]
<i>D. esculenta</i> (Lour.) Burkill	<i>D. spongiosa</i> J. Q. Xi et al. [‡]
<i>D. esquirolii</i> Prain et Burkill	<i>D. subcalva</i> Prain et Burkill
<i>D. exalata</i> C. T. Ting et M. C. Chang	<i>D. tentaculigera</i> Prain et Burkill
<i>D. fordii</i> Prain et Burkill	<i>D. tenuipes</i> Franch. et Savat.
<i>D. futschauensis</i> Uline ex R. Knuth	<i>D. tokoro</i> Makino
<i>D. garrettii</i> Prain et Burkill [†]	<i>D. velutipes</i> Prain et Burkill
<i>D. glabra</i> Roxb.	<i>D. wallichii</i> Hook. f.
<i>D. gracillima</i> Miq.	<i>D. xizanensis</i> C. T. Ting
<i>D. hemsleyi</i> Prain et Burkill	<i>D. yunnanensis</i> Prain et Burkill
<i>D. hispida</i> Dennst.	<i>D. zingiberensis</i> C. H. Wright
<i>D. japonica</i> Thunb.	

[†] listed in the revised *Flora of China* ^[28]

[‡] Updated names, previously cited in FRPS ^[29] as *D. henryi* (Prain et Burkill) C. T. Ting, *D. septemloba* Thunb., *D. arachidna* Prain et Burkill, *D. opposita* Thunb., and *D. parviflora* C. T. Ting.

Taxonomy

Family: Dioscoreaceae

Genus: *Dioscorea* L.

There are many scientific synonyms and common names for *D. batatas*. *Dioscorea batatas* is called Chinese yam, cinnamon yam, wild yam, or common yam; it is referred to as *Dioscorea polystachya* and *Dioscorea opposita*. It is also synonymous with *Dioscorea oppositifolia*. *Dioscorea batatas* is the taxonomic name generally used in the United States^[29].

Description

Dioscorea batatas is a twining herbaceous vine that has an erect, cylindroid tuber up to 1 m in length. A cross section of the tuber is white when dry. Usually twining in a counter-clockwise direction, stems are purple and glabrous. Simple leaves begin alternately from the lower stems then become opposite farther up the stem. Sometimes the leaves also occur in whorls of three. They are often three-lobed, with the middle lobe being ovate-elliptic to lanceolate, and lateral lobes round to nearly squared, or earlobe-shaped; leaf blades vary from ovate-triangular to broadly ovate or hastate, 3-9 cm long and 2-7 cm broad, with acuminate apices, and deeply to broadly cordate or subtruncate

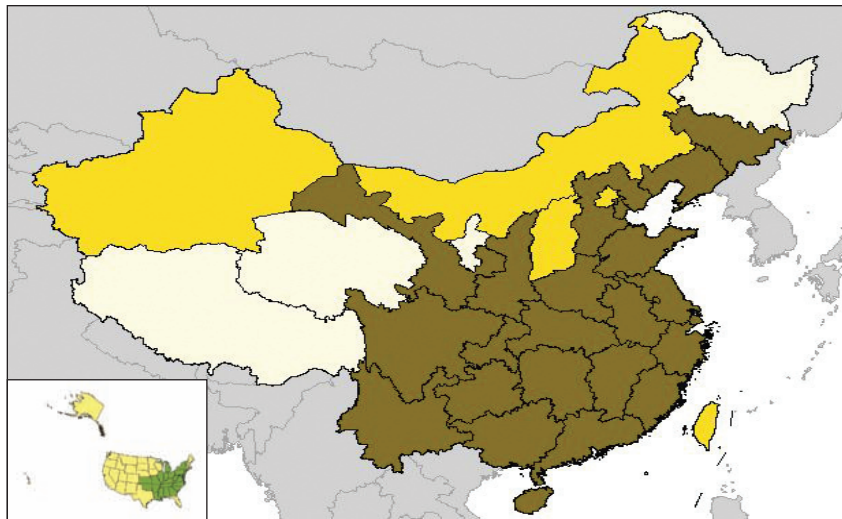
bases. Flowers appear from June to September. Rarely in panicles, the male inflorescences are two to eight spikes, 2-8 cm in length, that grow erect from the leaf axil, with zigzag rachis. The outer lobes of male flowers are broadly ovate while the inner lobes are ovate. Female inflorescences form one to three spikes in the axils. Fruiting from July to November, capsules are oblate or globose, 1.7–2 cm long and 1.5-3 cm wide, white-dotted, and contain membranous winged seeds near the middle of the capsule^{[28][29]}.

Habitat

Dioscorea batatas occurs in forests, scrub land forests, herb communities, along rivers, roadsides, hillside, and disturbed areas, at elevations of 100 – 2,500 m^[28].

Distribution

Dioscorea batatas occurs in the provinces of Anhui, Fujian, eastern Gansu, northern Guangdong, Guangxi, Guizhou, Hainan,



Hebei, Henan, Hubei, Hunan, Jiangsu, Jiangxi, Jilin, Liaoning, southern Shaanxi, Shandong, Sichuan, northern Yunnan, and Zhejiang^{[6][28]}.

Natural Enemies of *Dioscorea*

Thirteen species of fungi have been recorded to infect members of *Dioscorea*. Twenty-two species of arthropods in five families of three orders are reported.

Economic Importance

Also known as Huai Shan, the edible tuber of Chinese yam is used for medicinal purposes^[29].

Fungi

Phylum	Family	Species	H. R.	Ref.
Ascomycota	Botryosphaeriaceae	<i>Guignardia dioscoreae</i> A.K. Pande	oo	23 ^I
			o	23 ^{II}
	Meliolaceae	<i>Meliola hirsuta</i> Hansf. & Deighton	po	23
			<i>Meliola lianchangensis</i> G.Z. Jiang	mo
Basidiomycota	Atheliaceae	<i>Athelia rolfsii</i> (Curzi) C.C. Tu & Kimbr.	po	23 ^{III}
	Pucciniaceae	<i>Puccinia dioscoreae</i> Komarov	oo	23
			oo	149
Urocystaceae	<i>Urocystis dioscoreae</i> Syd.	mo	23	
Anamorphic <i>Diplocarpon</i>		<i>Gloeosporium pestis</i> Masee	o	23
Anamorphic <i>Mycosphaerella</i>	<i>Cercospora dioscoreae</i> Ellis & G. Martin		mo	23
	<i>Cercospora pachyderma</i> Syd. & P. Syd.		oo	23
	<i>Pseudocercospora contraria</i> (Syd. & P. Syd.) Deighton		oo	110
	Pseudocercospora <i>cylindrata</i> (Chupp & Linder) N. Pons & B. Sutton	oo	23 ^{IV}	
		oo	110	
<i>Pseudocercospora ubi</i> (Racib.) Deighton		oo	23 ^V	
		mo	110	
Anamorphic <i>Pyrenopeziza</i>	<i>Cylindrosporium dioscoreae</i> Miyabe & S. Ito		o	23

^I Recorded as *Phyllosticta dioscoreacearum* Bacc.

^{II} Recorded as *Phyllosticta dioscoreae* Cooke

^{III} Recorded as *Corticium centrifugum* (Lév.) Bres.

^{IV} Recorded as *Cercospora cylindrata* Chupp et Linder

^V Recorded as *Cercospora ubi* Racib.

Arthropods

Order	Family	Species	H. R.	Ref.
Acariformes	Tetranychidae	<i>Schizotetranychus baltazarae</i> Rimando	po	143
Coleoptera	Crioceridae	<i>Lema adamsii</i> Baly	oo	65
		<i>Lema fortunei</i> Baly	oo	65
			oo	139
		<i>Lema honorata</i> Baly	oo	139
		<i>Lema infranigra</i> Pic	oo	65
			oo	139
		<i>Lilioceris cheni</i> Gressitt et Kimoto	oo	139
		<i>Lilioceris egena</i> (Weise)	po	65
			mo	139
		<i>Lilioceris impressa</i> (Fabricius)	po	139
		<i>Lilioceris lateritia</i> Baly	po	65
		<i>Lilioceris maai</i> Gressitt et Kimoto	oo	139
		<i>Lilioceris ruficollis</i> (Baly)	po	139
		<i>Sagra femorata purpurea</i> Lichtenstein	p	65
			p	139
Lepidoptera	Arctiidae	<i>Spilarctia strigatula</i> (Walker)	p	40
			p	41
	Hesperiidae	<i>Abraximorpha olavidii</i> Mabille	p	158
		<i>Daimio tethys moori</i> (Mabille)	po	203
		<i>Tagiades litigiosa</i> Möschler	p	203
	Lycaenidae	<i>Loxura atymnus</i> (Stoll)	po	203
		<i>Spindasis kuyaniana</i> (Matsumura)	p	203
		<i>Spindasis lohita</i> (Hewitson)	po	158
		<i>Spindasis lohita formosana</i> (Moore)	po	203
<i>Spindasis syama</i> (Horsfield)		p	203	
<i>Spindasis syama sepulveda</i> (Fruhstorfer)	p	158		