

Aloes in Cultivation

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Information Sources

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Overview

Aloe is an Old World genus comprised of ±530 species. Its native range covers Africa, Madagascar and Arabia. Aloes grow in a variety of habitats from grasslands to scrub to semi-desert regions. Many aloes are threatened in their natural habitat.

Aloes are sometimes grouped by physical characteristics including tree aloes, single-stemmed aloes, multistemmed aloes, rambling aloes, creeping aloes, stemless aloes, speckled aloes, spotted aloes, dwarf aloes and grass aloes. Aloes were traditionally placed in the lily family (Liliaceae). More recently, they have been moved with several of their close relatives into their own family, the Asphodelaceae. Some botanists want to go further and group those with succulent leaves such as the aloes, gasterias and haworthias into their own family the Aloaceae or Aloodeae.

Aloe leaves are usually arranged in a rosette and most have teeth along the margins of the leaves. Some produce teeth on the upper and/or lower surfaces of the leaves as well. Aloe leaves range in color from deep green to glaucous blue-green. Some species have spots, speckles or lines on the leaf surfaces. Several aloes have spots when juvenile which disappear on mature specimens. Aloes are sometimes confused with agaves, however, aloe teeth generally are not as sharp or hard as those on agaves and aloe leaves lack terminal spines. Unlike many agaves, aloes don't die after flowering.

Aloes often have showy blooms which usually range in color from yellow to orange to red. A few aloe species have white flowers. The flowers are tube-shaped and are found on spikes or racemes which can be single or candelabra type. In some species, a mature plant can put up multiple blooms at the same time. Many aloes will bloom every year.

The juice of aloes has been used medicinally for centuries. Thousands of products are produced from *Aloe vera* (*Aloe barbadensis*) worldwide. It is used in products ranging from cosmetics, lotions and soaps to toilet paper. *Aloe vera* originated from North Africa or Arabia, but today is cultivated in many parts of the world. Similar medicinal products are produced from *Aloe ferox* in South Africa.

Cultivation Information

Soil

Aloes are easy to cultivate in a well-drained cactus/succulent soil mix.

Water

Although aloes can tolerate long periods of drought, they grow best with regular water during their growing season. Some are winter growers and some are summer growers. It is important not to over water them when they are not growing. Reduced watering combined with full sun can be used to get some species of aloe to turn attractive red colors.

Propagation

Aloes can be easily propagated by seed or by removing offsets. Shrubby aloes can also be grown from stem cuttings which

should be allowed to dry for a couple of days and then planted. Keep in mind when collecting seed that aloes hybridize extremely easily and that the seed may not be the true species.

Winter Protection

In general, aloes prefer warm climates. Most species can't handle temperatures much below freezing. However, I have had luck growing several species outdoors with minimal frost protection. There are a number of handsome species that can handle temperatures into the low 20s with minimal damage. Keep in mind that almost no aloes can survive temperatures much below 20°F without protection. Brian Kemble with the Ruth Bancroft Garden and the Institute for Aloe Studies has put together a list of hardier aloe species which can be found at the end of this handout.

Pests and Problems

Aloe Mite – The most serious aloe pest is the aloe mite, also known as the aloe wart mite or aloe gall mite. It is a Eriophyid mite known as *Aceria aloinis* (Keifer). Eriophyid mites are very small and are only visible using a microscope. They are worm like with only two pairs of legs and are poor crawlers with wind being their primary method of spreading. Watering in the greenhouse can also wash them from one plant to another. Identification of an aloe mite infestation is nearly impossible until a plant's responding gall growth begins. These galls are caused by the mite injecting a chemical into plant tissues during feeding causing the plant tissues to grow abnormally. The resulting galls are a blister of spindle-like fleshy projections found mainly on the topside of leaves but also occurring on the flower stems and buds. These galls severely disfigure the plant and for this reason the name Aloe Cancer is sometimes used.

The damage caused by the mites is irreversible. For heavily infested or common plants, the best course of action is to dispose of the plant in a trash bag so not to spread the mite to other aloes. For minor damage on valuable plants, cut off the gall with a sharp knife or razor blade. Remember to clean your hands and tools after treating a plant as not to spread the nearly invisible mites. Even though you cut away the damage, the mites may come back. I have had luck treating plants by first spraying with the miticide Avid and then with Malathion.

Aloe Rust – Round brown spots can sometimes be found on aloe leaves. This is often referred to as aloe rust. It is caused by a fungal infection. It usually doesn't pose a serious threat to the plant, but it can be unsightly. It can be treated with fungicide, but the recovery is slow.

A Few Aloes for Container Cultivation

Aloe albiflora

Aloe albiflora is a small stemless species from a remote area in southeastern Madagascar. It has erect, narrowly linear leaves about 5.5 in. long with rough, spotted surfaces and small white teeth on the leaf margins. The plant clusters from the base with each plant having between 7 and 10 leaves. It has unique white bell-shaped flowers on a 13 in. raceme. *Aloe albiflora* occurs in a very isolated locality and was found only once east of Tsivory in the extreme south of Tolanaro province.

Aloe bowiea

Aloe bowiea is a miniature clustering aloe species from a small area in the Eastern Cape Province of South Africa around Port Elizabeth and Kariega. It is unlike most other aloes in appearance. It has very thin leaves which broaden considerably toward the base, giving the plant a bulb-like appearance. The leaves are a pale green color, have tiny white spots near the base, and minute teeth on the margin. The flower is an unbranched raceme around 9.5 in. long with small greenish-brown flowers. In cultivation, it tends to flower throughout the year. *Aloe bowiea* is endangered in its natural habitat due to urban and industrial expansion, and overcollection.

Aloe cameronii

Aloe cameronii is a shrubby species found in Malawi, Mozambique, Zambia and Zimbabwe. It forms a lax rosette which often branches at the base forming a clump. The leaves are 19 in. long by 2.75 in. wide at the base and narrowing toward the leaf apex. The leaf margin is armed with small teeth. During the wet season the leaves are a dark green and turn a deep rust red during the dry season. The flowers are red on a branched raceme up to 3 ft. tall. Each rosette usually produces 2 to 3 blooms at the same time. *Aloe cameronii* is extinct over much of its native range in Malawi where it was originally discovered. I couldn't find conservation status for Mozambique, Zambia or Zimbabwe.

Aloe descoignsii

Aloe descoignsii is a miniature clumping species from southwestern Madagascar. It is the smallest of the Malagasy aloes. The recurved, triangular leaves are up to 1 in. long and .5 in. wide at the base. They are dull green and dotted with small white tubercles. The leaf margin has small white cartilaginous teeth. The inflorescence is around 6 in. tall with scarlet-orange flowers. It grows near the village of Anjamal in the Fiherenana river valley of the Toliara Province on narrow limestone ledges or steep rock walls.

Aloe dorotheae

Aloe dorotheae is a species from Tanzania. It forms slowly offsetting rosettes up to 20 in. wide. It has bright green leaves which are up to 9 in. long and 1 in. at the base with small white spots and teeth along the leaf margin. With full sun and low water, the leaves turn orange to bright red. The unbranched inflorescence is up to 2 ft. tall with red flowers with yellow tips.

Aloe erinacea

Aloe erinacea is a rare and slow growing species from Namibia. It forms solitary or very slowly clumping rosettes of up to 12 in. in diameter. The leaves are glaucous gray-green and heavily armed with large attractive white and brown-black teeth. It has red flowers on a 3 ft. raceme. This species grows extremely slow and can take 15 to 20 years to flower. *Aloe erinacea* has a small widely fragmented range and is endangered.

Aloe fragilis

Aloe fragilis is small clumping species from northeastern Madagascar. It forms large mats of 3" rosettes. The rosettes consist of only a few thick, narrowly triangular leaves which are 1.5 in. long and .75 in. wide at the base. They are dark green with whitish-green spots and small teeth along the leaf margin which are often paired. The blooms are mostly simple racemes around 5 in. long with red flowers which are white at the apex with green mid-veins. *Aloe fragilis* grows on steep rock faces about 100 to 165 ft. above sea level along the Indian Ocean coast. The rosette centers break off at the slightest touch, hence the species name "*fragilis*".

Aloe plicatilis

Aloe plicatilis is a unique tree aloe from South Africa. The stems are dichotomously branched and the plant can reach 16 ft. tall in large specimens. The gray-green leaves form clusters of strap-shaped leaves arranged in two opposing rows and resembling an open fan. The leaves are about 12 in. long and 1.5 in. wide with slightly cartilaginous edges. The inflorescence is a raceme 1.5 ft. tall with scarlet red flowers. *Aloe plicatilis* is found only in the western Cape mountains of South Africa, from Franschhoek in the south to Elandsklouf in the north. The plants grow on steep rocky slopes in well-drained, acidic soils. *Aloe plicatilis* is not currently threatened, but it has a limited natural distribution area.

Aloe ramosissima

Aloe ramosissima is a shrubby tree aloe from South Africa. It is one of the most profusely branched of the aloes. It has smooth gray-brown stems which terminate with small rosettes of glaucous gray-green, narrow oblong leaves up to 8 in. long and .75 in. wide at the base. The leaf margins have very fine brownish teeth. It blooms with short inflorescences up to 8 in. long with fat yellow flowers. *Aloe ramosissima* is probably not truly distinct from *Aloe dichotoma*. The main difference is the growth habit. *Aloe dichotoma* forms a large trunk before branching, while *Aloe ramosissima* branches immediately at the base. *Aloe ramosissima* is native to the Richtersveld and southern Namibia. It is a vulnerable species as a result of mining and overgrazing.

Aloe suprafoliata

Aloe suprafoliata is a solitary species from southeastern Africa. The leaves of young plants are arranged in two flat rows and resemble the pages of an open book. After a few years the leaves will take on the form of a spiral rosette up to 1 ft. in diameter. The blue-green leaves often have red tips and are armed with sharp marginal teeth. Mature plants will produce up to three unbranched racemes with pencil shaped dark pink to red flowers. *Aloe suprafoliata* grows on rocky slopes in northern KwaZulu-Natal, eastern Swaziland, just entering Mpumalanga. It is not currently threatened in habitat.

Aloe tauri

Aloe tauri is a clumping species from Zimbabwe. The plants are usually stemless or with short stems and form large clumps. The leaves are yellow-green, 12 to 24 in. long and 2.5 in. wide at the base. The margins have brown, sharp hooked teeth. The leaves turn a dark red when the plant is dry and in full sun. The bloom is up to 2 ft. tall with bright yellow flowers. *Aloe tauri* is known from only three localities on the edge of the southern lowveld of Zimbabwe. It grows on bare granite hills with grasses and cling to almost vertical rock faces.

Aloe vanbalenii

Aloe vanbalenii is a species easily recognized by its long snake-like, gracefully twisting, deeply channeled, yellow-green leaves with dark red edges that lie close to the ground. The rosettes form a low clump up to 3 ft. wide. The entire plant can turn a rust red when in full sun and kept dry in the winter. It has yellow to orange-yellow or occasionally dull red flowers on unbranched racemes. *Aloe vanbalenii* is native to northern KwaZulu-Natal and the extreme southeastern part of Mpumalanga in South Africa. It is not currently threatened in habitat.



Aloe Mite Damage



Aloe Rust



Aloe biflora



Aloe bowiea



Aloe cameronii



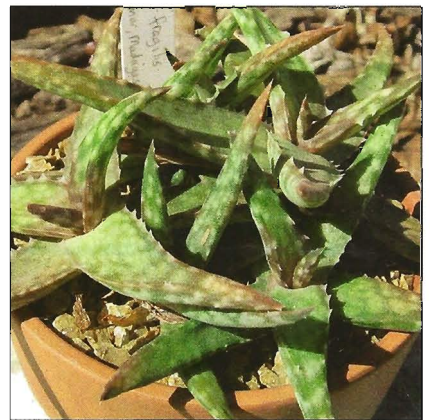
Aloe descoignsii



Aloe dorotheae



Aloe erinacea



Aloe fragilis



Aloe plicatilis



Aloe ramosissima



Aloe suprafoliata



Aloe tauri



Aloe vanbalenii

Brian Kemble's List of Hardy Aloes

Species	Minimum temp in cultivation(°F)	Minimum temp in habitat (°F)	Comments	Winter Grower
aculeata	20	22		
adigratana	28-30			
affinis		22		
africana	25	32		
alooides	27	29		
ammophila	25	28	survived with leaf damage at 25°	
angelica		29		
arborescens	19	29	killed below 19°; fairly hardy and very wet tolerant	
aristata	19	13	very cold hardy, can rot with insufficient drainage	
asperifolia		25	cold hardy, can't tolerate too much rain in winter	
berhana	20		leaf damage at 20°	
branddraaiensis	25	22		
brevifolia	20	25	quite cold hardy and wet tolerant	X
broomii	20	17		
buhrii	25	27	performs well in S. California	X
burgersfortensis	25	28		
cameronii	upper 20's		some clones hardy to upper 20's, others tender	
camperi	low 20's		bad leaf damage in low 20's	
candelabrum	low 20's	28	flowers damaged in the low 20's	
capitata var. capitata	low 20's		leaf damage in the low 20's	
capitata var. quartziticola	low 20's		leaves OK, flowers damaged in the low 20's	
castanea	20	30		
ciliaris	20	20		
claviflora	20	24	rots easily if wet too long, but hardy to 20°	
comosa	28	30		X
comptonii	25	27	under tree cover at 25°	
cooperi	25	29	leaf damage under plastic cover at 25°	

Species	Cultivation (F°)	Habitat (F°)	Comments	Winter Grower
cremnophila	upper 20's		undamaged under tree canopy in upper 20's	
davyana	20	19		
dichotoma	upper 20's	24		X
divaricata	20		severe damage at 20°	
distans	20	34	very hardy and wet tolerant	X
dumetorum	25		leaves damaged at 25°	
dyeri		28		
ecklonis		17		
elgonica	25		bad leaf damage at 25°	
erinacea		27		X
excelsa	low 20's	37	leaf damage in the low 20's	
ferox	20	24	flowers damaged at 20°, leaves OK	
fosteri	20	22		
framesii	mid 20's	34		X
gariensis		23		X
glauca	mid 20's	27	very hardy and wet tolerant	X
graciliflora		26		
gracilis		26		
grandidentata	low 20's	19		
greenei	mid 20's	37		
hereroensis		21	needs excellent drainage to survive wet winters	
hildebrandtii	upper 20's			
humilis	low 20's	25		
immaculata		28		
inyangensis	mid 20's		heavily damaged at 20°, OK under cover to mid 20's	
juvenna	low 20's			
karasbergensis		21	needs excellent drainage, little summer water	X
kedongensis	mid 20's		moderate damage at 26°, heavily damaged at 20°	
keithii		26		

Species	Cultivation (F°)	Habitat (F°)	Comments	Winter Grower
khamiesensis		24	needs excellent drainage, little summer water	X
komatiensis		24		
krapohlana		28		X
lateritia	low 20's		leaf damage at low 20's	
lineata	20	20		
littoralis		26		
longistyla		20	sensitive to wetness, rots easily	
lutescens	mid 20's	37	mid 20's under cover	
marlothii	20	22		
melanacantha		28	needs excellent drainage	X
microstigma	low 20's	27		
mitriformis	low 20's	34		X
mudenensis	mid 20's	26	flowers damaged mid 20's	
mutabilis		21		
mutans	20	30		
namibiensis		25	very sensitive to wet conditions	
ortholopha	mid 20's			
pachygaster		20	very sensitive to wet conditions	X
parvibracteata		24		
pearsonii		27	very sensitive to wet conditions	X
peglerae		21	quite hardy if dry	
perryi	low 20's		survived low 20's with leaf damage	
petricola	low 20's	28		
pillansii		27	very sensitive to wet conditions	X
plicatilis	20	20	blackened leaf tips in the 20's, killed in the teens, likes lots of water	X
pluridens	low 20's	28	low 20's if under cover; killed in the teens	
polyphylla	mid 20's	9		
pratensis		19		
pretoriensis		28		

Species	Cultivation (F°)	Habitat (F°)	Comments	Winter Grower
prinslooii	mid 20's	33		
ramosissima		27	needs excellent drainage	X
reitzii	20	26		
reynoldsii		27		
rivae	20			
rubroviolacea	mid 20's		survived 20° with leaf damage	
sabaea (syn. gillilandii)	29		killed at 20°	
saponaria	20	30	quite hardy and does not mind winter rain	
schelpei	upper 20's		undamaged under tree canopy in upper 20's	
simii		29		
sinkatana	mid 20's		performs well outside in the SF Bay Area	
soutpansbergensis		24		
speciosa	20	28		
spectabilis	mid 20's	26		
striata	20	21	performs well in all but the coldest winters	
striatula	18	26	most "bomb proof" aloe, takes extremes of cold and wet	
succotrina	20	33	flower damage at 20°	X
suprafoliata	20	23	flower damage at 20°	
tenuior	mid 20's	25		
tomentosa	mid 20's			
transvaalensis	20	28		
ukambensis	low 20's			
vanbalenii	mid 20's	24		
vandermerwei		24		
variegata		21	needs excellent drainage	X
verdoorniae		24		
viridiflora		28		
vogtsii		24		
wickensii	20	30	flowers ruined at 20°	
zebrina		20		