



INFORMATION

Some Truths about Succulents

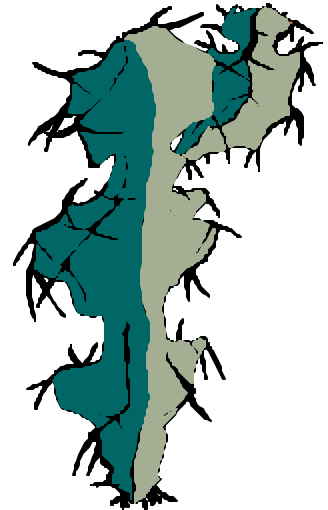
What is a succulent?

Plants which grow in a dry land must have some way to limit water loss. One group of dry-land plants, the succulents, lose very little water because they have fleshy leaves and stems that are covered with a thick, waxy surface. Specialized cells inside the plant hold water tightly, a reserve for the time without rain, and the waxy surface prevents evaporation from the leaf's surface.

Succulents are found in all regions of the world but most occur in frost-free regions with low rainfall. They are rare in the driest desert, prominent in arid regions and occasional in humid forests. Succulents can be divided into two groups, depending on their form:

Stem succulents – these plants often have only the tiniest leaves, if any at all. The stems are fleshy and may contain chlorophyll for photosynthesis. They are often columnar or barrel shaped (for example, Saguaro cactus).

Leaf succulents – these often look like 'normal' plants but the leaves are small and fleshy, capable of tightly storing water. Some leaf succulents are quite different. The stem in these plants is compressed and gives rise to a rosette of large, fleshy leaves (for example, Agave).



Not all succulents are cacti...

...though all cacti are succulents. Any plant with fleshy leaves or stems that store water is a succulent.

Not all succulents have spines or thorns...

...Sedums and jade plants are both examples of succulents without thorns. In a harsh environment, thorns are believed to guard against predators. Many succulent plants are also bitter or toxic, so even those animals that brave the thorns often end up with a meal they cannot eat.

Not all thorny plants are succulents...

...We have examples of thorny plants here in Indiana – hawthorns, black locust, roses and raspberry brambles are all hazardous to the touch. Even some arid climate plants, such as yuccas and ocotillo, are not technically succulents. Defenses against becoming dinner are needed by many plants.

Growing succulents at home

Succulents are often well-suited to life in the house. They adapt easily to dry, inside air and will probably enjoy being neglected during your vacation. To successfully grow these plants:

- Use a well-drained potting mix. Buy special 'cactus' formulations or start with potting mix and add perlite or coarse (not fine) sand.
- Most succulents like bright light but overheating in a sunny window can be a problem. Make sure air flow is good, which will reduce heat build-up. Succulents from humid areas, such as Christmas cactus, thrive in less intense light.

- Water infrequently. Water more during the growing season, much less during the winter dormancy period. When in doubt, don't water. Avoid pouring water over the leaves and stems - water the soil only or water from the bottom.
- Fertilize with dilute liquid fertilizer, but only when the plant is growing.

Some thorny succulents to know and love

Cactus – Everybody's favorite succulent. Native to the New World (except for a few plants in Western Africa), these stem succulents live mainly in deserts and arid regions, but a few inhabit forests. There are two main types – the segmented cactus, represented by prickly pears and cholla, and ribbed cactus, such as Saguaro and barrel cactus. The segmented cactus have not only spines but also fine hairs called glochids. These tiny barbs are easy to dislodge from the cactus, but not so easily dislodged from your skin. All cactus bear spines on a small cushion called an areole. These, plus large showy flowers with many petals, define the cactus family.

Euphorbia – This tropical family includes many non-spiny, non-succulents such as croton, poinsettia and castor bean. The succulent Euphorbias are stem succulents, often with ribs. Their flowers are small and not very decorative. Even in poinsettias, it is a modified leaf, not the flower, that provides all the color. Besides the flower, Euphorbias are also characterized by their white, often poisonous sap.

Pachypodium – These stem succulents hail from Madagascar and southwest Africa. The usual form is a tall single trunk with large leather leaves on the top.

Agave – These are rosette-forming leaf succulents of the New World. The edges of the leaves are usually lined with spines and the tip is sharp. Each rosette produces a tall flower spike once in its lifetime, typically after 10-30 years, then dies. The plant lives on, however, since side rosettes are usually formed. Agaves were an important food source for Native Americans.

Aloe – Leaf succulents from the Old World, Aloes differ from Agave in that their stem is often elongated and visible (on Agaves it is tightly compressed). Aloes also flower each year from the same rosette. The inner gel of the leaves is often used as a wound-healing agent.

Alluaudia – These leaf succulents from Madagascar are tree-form and hold their stalkless leaves vertically below each thorn. They are a favorite haunt of Madagascar's remaining lemur population.

Some thorny non-succulents to know and love

Yucca – Though Yuccas are considered to be non-succulent, they are New World plants closely related to the succulent Agaves. Their leaves do not have spiny edges, but sharp tip points. Some species grow trunks, becoming almost tree-form. Yuccas flower each year on tall spikes.

Fouquieria splendens – Ocotillos are native to the American Southwest and Mexico. When the rains come, ocotillos sprout leaves but lose them quickly when water becomes limited. Plants that grow or lose leaves in response to water availability are called 'drought deciduous'. The long, woody, spiny stems of the ocotillo bear red flowers every spring, regardless of rainfall, and are an important food source for migrating hummingbirds. The stems can be cut and used as fencing.

References:

Arizona-Sonoran Desert Museum, *A Natural History of the Sonoran Desert*. Arizona-Sonoran Desert Museum Press, Tucson, 2000. ISBN 0-520-21980-5.

J. Ríha and R. Subić, *The Illustrated Encyclopedia of Cacti and other Succulents*. Octopus Books Limited, London, 1981. ISBN 0-7064-1492-6.



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