

Succulents

WRITTEN BY JOHN MASON AND STAFF OF ACS DISTANCE EDUCATION

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CREDITS

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CHAPTER 1 CLASSIFICATION & CULTURE

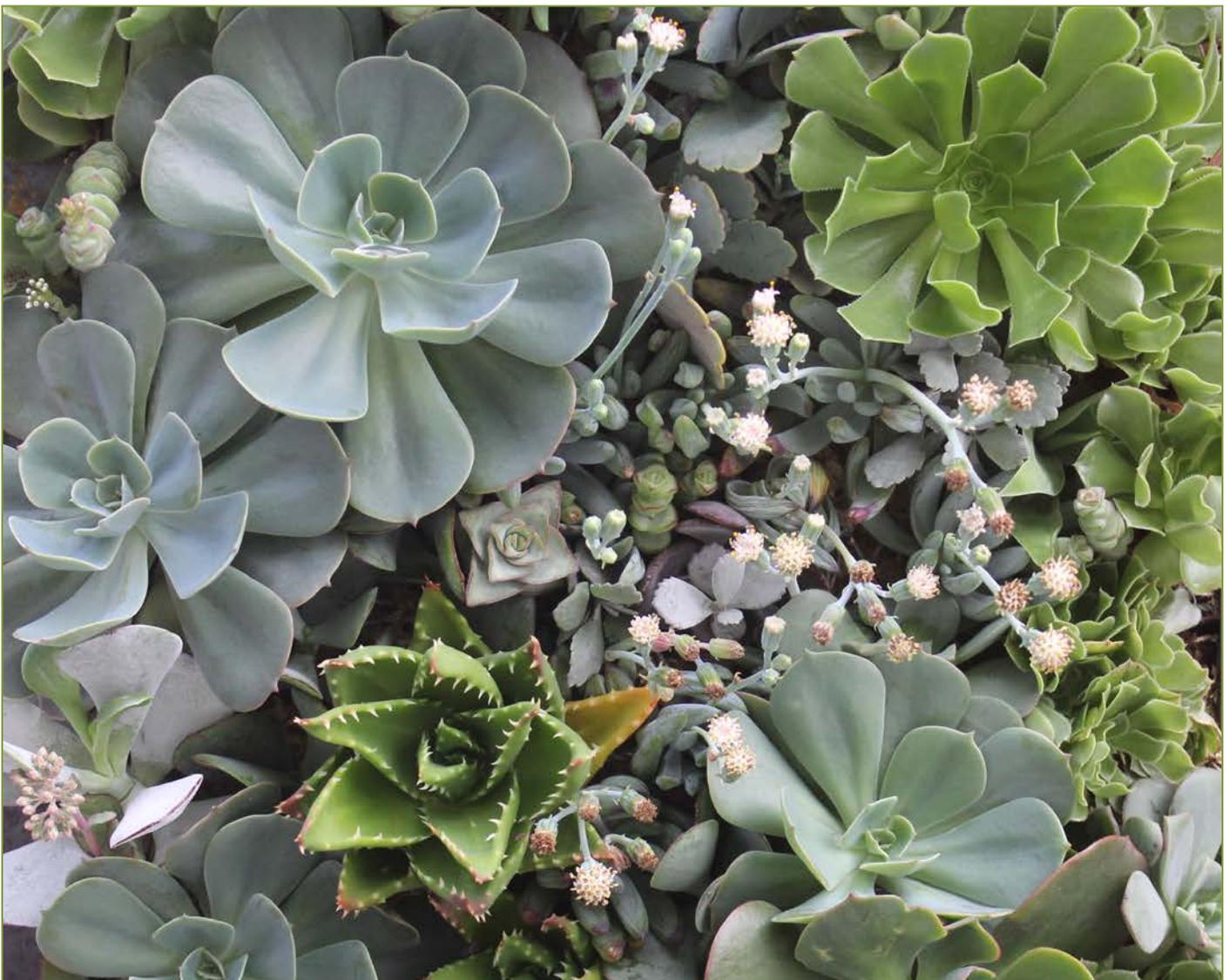
“Succulent” is not a particularly precise term. It can mean different things to different people and in different places; but the one thing that it always means is “containing more moisture”.

There’s a popular belief that all succulents are very hardy plants that like hot, dry conditions. As with many “popular” beliefs, this is not so simple!

Succulents are plants with “fleshy” foliage, higher in water content than other plants. Beyond this, succulents include a very diverse range of plants varying in both appearance and the

conditions under which they grow. Some need a hot climate, but others need a cold climate. Some may thrive in relatively dry soils, but others need moisture and are likely to deteriorate rapidly in very dry conditions.

The first thing to recognise about succulents is that you cannot treat them all in the same way.



Vertical Garden Succulents

DEFINING SUCCULENTS

The Oxford Dictionary defines a succulent as “having thick, fleshy leaves or stems, adapted to storing water”.

Other definitions also include plants with succulent roots.

Some definitions on the other hand may only consider succulents as plants with succulent leaves. This definition however, excludes many plants that botanists generally considered as succulents, such as cacti and other stem succulents.

Caudiciforms are stem succulents with non-photosynthetic stems.

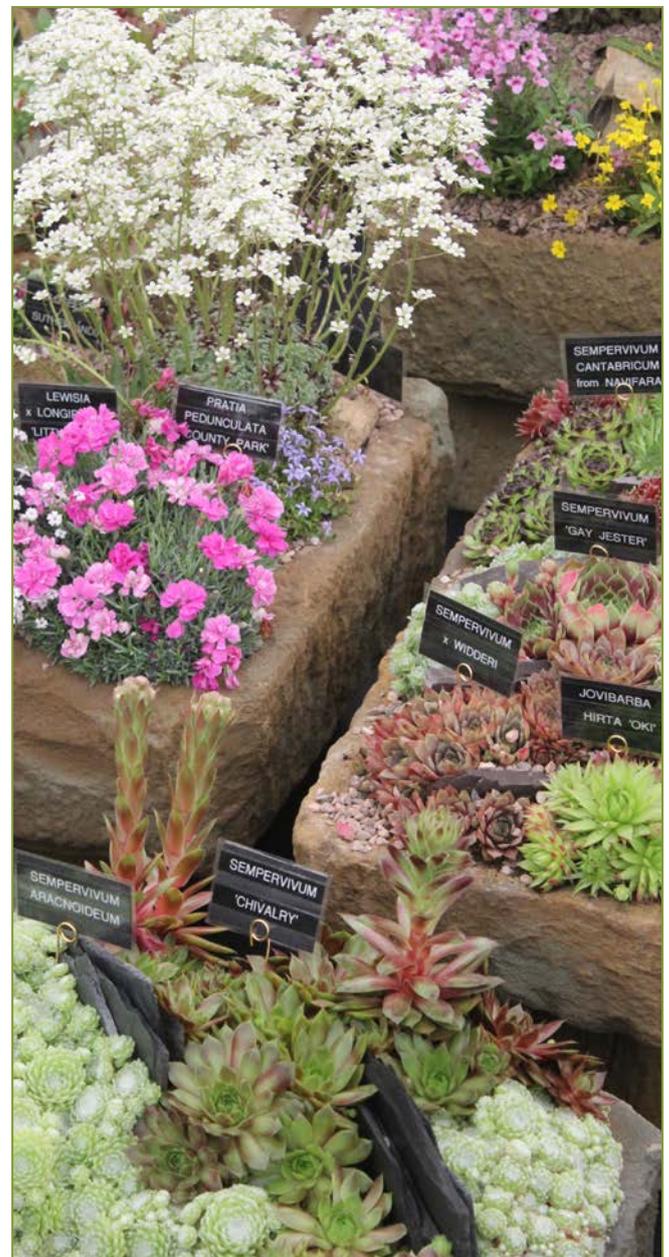
Defining succulents is further complicated as the degree of succulence varies. The thicker the plant’s structure is and the more water it contains, the more succulent it is. Some plants are very succulent while others are barely succulent.

Botanical Facts

The root hairs on most flowering plants, including succulents, will die off during times of drought, and regrow when the soil becomes moist again. The thing that is different about most succulents is that their root hairs can regrow much faster than other plants. After rain, succulent root hairs may grow back and begin absorbing water and nutrients within 24 hours.

Plants have stomata on the surface of their leaves and stems. The stomata can open to allow carbon dioxide to enter the plant. Carbon dioxide is needed for photosynthesis. The stomata are also

involved in transpiration. When they are open, the stomata allow water vapour to escape. In most plants the stomata are open during the day. In many succulent plants on the other hand, the stomata are closed during the day and open at night, reducing the loss of water. In these plants the uptake and fixation of carbon dioxide occurs at night. Carbon dioxide is stored in form of malic acid until it is released during the day for photosynthesis. Plants with this carbon fixation pathway are known as CAM plants. CAM stands for crassulacean acid metabolism.



Mostly succulents in Stone Troughs

The Succulent Families

Many different plant families contain some plants that are succulents. Some families are dominated by succulent plants, while others may be dominated by non-succulents, but still include some plants that are either strongly succulent or weakly succulent.

Classification of families by scientists has been changed periodically over the years. Sometimes you will encounter an expert reference that was written at a time when names were different. You can also occasionally encounter a credible expert who disagrees with a name change. Don't be confused or disenchanted with the classification of plants. It is important to recognise that scientific classification while not perfect, is by far the most accurate way of identifying plants; and that understanding the families which plants fall into; provides an essential framework for both identifying and growing different species.



Agave attenuata

Families that include succulents include:

Agavaceae

23 genera: comprising over 600 species.

- From tropical, sub-tropical and temperate areas.
- Narrow, lance shaped leaves, sometimes succulent and fleshy, some not.
- Flowers on most occur in large clusters.
- Fruits can be a berry or capsule.
- This family was formerly part of the family *Liliaceae*. It is generally considered a family in its own right, but some experts classify it as a sub family under the family *Asparagaceae*.

Genera include: *Agave*, *Beschorneria*, *Furcraea*, *Hesperaloe*, *Manfreda*, *Polianthes* and *Yucca*.

Aizoaceae (syn. *Ficoidaceae* previously)

Over 120 genera and 2,500 species.

- Most, but not all are succulents, rarely woody.
- Over 95% of species from arid to semi-arid sites in Africa. Some also from Australia and the Pacific.