NEWSPAPER ARTICLES

Falling in Love with Cactus! (April 19, 2025)

By Kate Mackey, Tulare/Kings Counties Master Gardener

I must have an affinity for plants that want to hurt me. I love Oleanders and talk about them to anyone who listens, but people always come back with, "But they're poisonous!" [sigh] Do you know how many plants around us are toxic, if not deadly? Don't ask.

I also love Cacti (plural for cactus). Their odd shapes and prominent spines fascinate me. And the flowers of the cactus are so spectacular and varied. They're tough, no-nonsense organisms that say, "This is what I am. Deal with it." I like that in a plant.

What constitutes a cactus? How is it different from a succulent--and for that matter, what *is* a succulent? The term succulent is used to identify plants that have thick, fleshy, engorged parts that retain water. This trait has developed so the plant can survive in arid climates. Succulents occur on every continent except Antarctica, and the word "succulent" is used to describe a plant trait, not a botanical type, so identification and categorizing can get rather tricky.

Within the category of Succulents, the family known as Cactaceae occurs (kak-**tay**-see-ee). This family is a distinct group taxonomically. Cacti occur naturally only in the Western Hemisphere with (of course) one exception, *Rhipsalis baccifera*, also known as the Mistletoe cactus, which is found in South Africa, Sri Lanka, and Madagascar. The Saguaro cactus, which is so symbolic of the Southwest, is a good specimen of the cactus. This example can live for almost two hundred years and grow to 60 feet in height.

Cacti are identified by having **areoles**. The areole has evolved to take the place of what would be branches in other types of plants. They are small, cushion-like structures arranged in rows or spirals, have tiny hairs called trichomes, and can also have small spines called glochids, which are often barbed and can be very dangerous if they get in your skin, mouth, or eyes. The spines of the cactus are modified leaves that grow out of the areoles. They can emerge as a central spine like a lance sticking straight out or grow out laterally like the petals of a flower. The central spine usually provides protection from predators and, if colored, can attract pollinators. The moisture from the condensation in the air can collect on the spines, dripping down to provide water to the roots. The lateral spines can be of various colors, and the stem can be protected by providing shade. These spines can be curved, hooked, feathery, bristly, flattened, sheathed, or needlelike.

All plants photosynthesize, collecting carbon dioxide through pores in their leaves called "stomata" and converting it into sugar and oxygen. Interestingly, the stem of the cactus has taken over the job of photosynthesis, which usually occurs in the leaves of other plants. Very few cacti have leaves, but there are exceptions. Photosynthesis occurs differently than in other plants. Cacti utilize CAM (Crassulacean acid metabolism) photosynthesis, a process unique to succulents. In CAM photosynthesis, stomata open only at night when it is relatively cool, so less moisture is lost through transpiration (plants' form of breathing) when the plant can take in carbon dioxide. However, photosynthesis also requires sunlight. The CAM process provides a way of chemically storing the carbon dioxide until the sun comes out when it can be used to complete the photosynthetic process. Stomata are like windows; they must be open to let air and water in or out, but sunlight can come in even if they're closed, so this unique process generates the needed nutrients with less loss of moisture.

Because of the lack of transpiration in cacti, the regulation of their body heat is severely limited, and biologists and ecologists have noted what is known as the "nurse effect." Many columnar cacti germinate and grow in the shade of larger "nurse" trees such as mesquite and ironwood, creating a microclimate with less heat at ground level.

Perhaps the most spectacular aspect of cacti is their flowers. Though short-lived, the flowers are usually large, colorful, and showy. In the desert, the harsh climate does not promote a host of insects and birds. However, the size and color of the flowers make them stand out, and they can attract larger pollinators like bats, birds, and larger insects. These flowers come in a variety of colors: reds, pinks, yellows, oranges, and white, which attract night pollinators like bats and moths. Cacti are monoecious, meaning that the plant has both male and female flowers but still requires cross-pollination from flower to flower to produce seeds.

Within the Family Cactaceae, around 2000 species occur naturally in the Western Hemisphere, from Southern Canada down to Chile and Argentina. The greatest variety is found in Mexico. In California, there are around sixty or so species in eleven families, mostly occurring in the dry inland areas between mountain ranges. There are a few cacti that grow in the wetter coastal regions. There is no room in this short article to explore the varieties of Cacti available for home gardeners, but I urge you to search through your local nurseries to purchase, as well as backyards of friends, for specimens that you can propagate with the permission of the owner.

Handle carefully, be patient, and you will be rewarded with a plant that is tough but stunning in its presentation when it blooms.

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