St. Augustine Orchid Society

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What Is an Orchid?

by Dr. Carl L. Withner, Canadian Orchid Congress

How many times have people asked me if an iris isn't some kind of orchid? No. Orchids are not lilies, amaryllids, gingers, cannas, bananas or irises, but all are closely related. These families are grouped together to form the monocots of the botanical world, and the orchids are noteworthy for having the most specialized flowers, habits and life histories in the entire group.

Flower Characteristics

The major distinction of the orchid flower is the column, the single reproductive structure formed by a fusion of stamens and pistils that are separate in the flowers of the other families mentioned above. Though there are basically three stamens and three pistils, usually only the anther of one stamen remains functional, bearing its pollen at the tip of the column. The stigmatic surface, the part of the column that receives the pollen, is just below it. The orchid flower has three sepals, alternating with three petals. The sepals protect the flower in the bud, but become colored and petal-like when the flower opens, often giving the impression of a six-petaled flower, or five petals plus one that is different. The different petal (and one always is) is called the lip. The lip petal is marked by unusual form, veining patterns and usually a series of keels and protuberances called a callus. The shape of the lip and its callus - sometimes the whole flower - is highly adapted for insect attraction with resulting pollination. In fact, the evolution of the orchid family closely parallels the evolution of pollinating insects.

Fruits and Seeds

If pollination takes place, a seed pod forms that may require as long as 14 months to develop. Usually about nine months will suffice, and the pod may have literally millions of seeds in it. The seeds are almost dust-like in size and are easily carried by wind and water for great distances. The embryo of the orchid seed is so tiny and underdeveloped, in comparison with other types of seed, that special conditions are necessary for its germination and growth. Until the little ball of undifferentiated cells becomes green, forms a growing point and finally begins to develop tiny leaves, it must live in symbiotic association with a favorable fungus. It is not surprising that from the many seeds produced in a single pod only a few survive to grow to adulthood - a process that may occur in a few months but with most species takes from six to twelve years.

Orchid Evolution

Orchids most likely originated in the warm regions of southeastern Asia and spread from there throughout the world. While the majority remained in the tropics, others, in migrating, became adapted to colder climates by means of seasonal growth that responds to changes in temperature. In the tropics, some orchids can grow more or less continuously, but most are seasonal there, too, responding not to winter vs. summer, but to the effects of alternating wet and dry periods. Such factors must be considered in the culture of these plants.

Growth Patterns

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The orchid plant itself has a variety of forms that merge into three basic patterns, one terrestrial, the other two epiphytic (epi=upon; phyton=plant). Terrestrial orchids in both tropical and temperate zones form leaves and flower stalks from underground corms or rhizomes that enable the plant to winter over. In fact, the name orchid is from the Greek orchis, meaning testis, in reference to the appearance of these underground parts. Theophrastus, Dioscorides, and other ancients of Europe and Asia Minor were the first to describe such orchids. In those days people were interested in the presumed medicinal uses of plants and whether or not they had souls, and thought that the shape or structure of a plant "told" what it was good for.

In the tropics, the habit of most orchids is to perch on the branches of trees, or sometimes rocks, from which they derive support but nothing else - they are not parasites. If the orchid grows constantly from the tip, and propagates itself by forming offshoots (known as "keikis" from their Hawaiian name) from the base of the plant, we refer to the growth pattern as monopodial (single-footed). Monopodial orchids are found especially in the forests of southeastern Asia, the Philippines, Madagascar (Malagasy) and Africa. If the plants grow seasonally, responding to wet and dry periods, sending up a new branch each season from the main rhizome, they are considered sympodial (with feet). Such orchids are found especially in the New World, but also where the monopodial types grow.

Learning to grow orchids in cultivation and to recognize the different sorts are among the intellectual challenges constantly presented by these plants. No other family involves so many aspects of horticultural activity, from laboratory to greenhouse or garden. No other family can present some 30,000 species and some 75,000 hybrids for the grower to choose from. To anyone who becomes attached to them, orchids soon become much more than botanical curiosities-they are likely to become a way of life.

Note: The late Dr. Carl L. Withner wrote this article and it was reprinted in the February 2001 Canadian Orchid Congress newsletter, a great searchable source of orchid information.