

## AN ABNORMAL SOBRALIA FLOWER

Orchid flowers with abnormal numbers of petals or lips are called peloric.

A species of *Sobralia*, grown under the name *S. brandtiae* (but not fitting the description of that species) flowers regularly at the National Botanic Gardens, Glasnevin. It is the first of the *Sobralias* to flower each year and continues to flower when *Sobralia macrantha* and *S. decora* are in flower. *Sobralia* flowers are fleeting, staying in freshness for no more than two days and often for a single day.

On July 1 2013, a flower bud opened to reveal a ‘double’ flower. Other flowers on the same plant had opened as single flowers, as expected. On July 2, the fading flower was removed and dissected revealing five individual sepals, three petals, two labella and a single column with one stigma and two anthers.

Flowers such as these – called pelorics - are unusual and unreliable, unlike some others where the abnormality is constant. ■



*Sobralia brandtiae*—‘Double’ flower



**Peloric forms:**

Pelorism describes the condition when the petals of an orchid flower share features in common with the labellum (for example, shape and/or colour).

Peloric forms can appear haphazardly in a few orchids in nature. The presence of peloria is genetically determined; however the expression of peloria may be influenced by environmental changes or by the plant being stressed.

## EXCESSIVE LIP SERVICE: PELORIC ORCHIDS

One of the main characteristics that define the family of orchids is that they have three petals, one of which has been modified into a different structure: the labellum, or lip. Of course, as usual with the plant world, there are exceptions. Every now and then an orchid blooms that is not quite "right." Suppose you are at your favorite orchid emporium, and you now have a pretty good idea of what a good orchid looks like. You look for healthy growth, healthy roots, and if the plant is in bloom, nice blossoms with three sepals, two petals, one column, and one lip. As you are looking over the myriad of orchids in bloom, you notice that something is not quite right in the orchid world. One plant kind of sticks out a little. You look closer, and notice that there appears to be not one, but three lips on each flower. Several questions then arise in your mind: Why are there three lips? Is the plant confused? Is it trying to attract more pollinators? Is this plant good enough or unusual enough to get an AOS award? What have I been drinking the night before? And of course: Should I buy this plant?

Well, what you see in front of you as "mistakes" in floral morphology are called peloric flowers. The production of a structure that strays from its normal morphology is described as teratological, teratology being the study of plant "monsters and monstrosities." These mistakes in the morphology of a plant structure occur in various ways. These include fasciations, an enlargement and flattening of a plant structure, especially the inflorescence; peltation, the formation of leaf-like structures in place of perianth segments; and peloria, an abnormal regularity occurring in normally irregular flowers.

Peloria in orchids occurs when the petals take on the color and/or the shape of the lip, and may be found anywhere between two extremes. In *Broughtonia sanguinea* 'Aquinii' there is a slight coloration found at the tips of the petals similar to the color in the lip, while in *Cymbidium hoosai* 'Butterfly Lip' the petals may have the full appearance of the structure of the lip. The presence of peloria is genetic, but expression of peloria may be influenced by environmental changes or by being stressed. These are not always stable, and the plant may flower normally on the next inflorescence.

While some peloric orchids pop up haphazardly, others are being bred, mericloned and marketed. We can now obtain peloric forms of *Phalaenopsis intermedia* and *Phalaenopsis equestris*, and some spectacular peloric color forms of *Doritis pulcherrima*, such as 'Lakeview Yellow Splash', and 'Lakeview Red Splash'. *Cattleya intermedia* variety aquinii has white flowers, and also has the red-magenta lip coloration present in the petals, and has given rise to the splash-petal Cattleya hybrids. There is also a neat twist to these peloric flowers. Plants of *Dendrobium Classic Gem* and its progeny are now available. These are "reverse" pelorics, where



the lip has reverted back to looking like the petals. Some orchid growers find little fault, if not beauty, with peloric flowers. Mrs. P. K. Manuel referred to peloric flowers found in *Phalaenopsis intermedia* as a fascinating phenomenon, and that "a splashed-petal hybrid in Phalaenopsis will be a welcome novelty." Dr. Dominic Man-Kit Lam described *Cymbidium hoosai* 'Butterfly Lip' as "probably the most superior variety because of the perfect symmetry created by the three sepals and three lips. Viewing this flower... is like looking at a pattern through a kaleidoscope."

But there are those who feel that peloria is not a good quality to look for in an orchid flower. Some feel that peloric flowers are deformities, and that "peloric orchids that display a complete inflorescence of deformed flowers should automatically be disqualified from further consideration" in AOS judging, some also feel that the flowers of Dendrobium Classic Gem are no longer "true" orchids, and so will not grow or judge them. But some of these same people feel that splashed-petal cattleyas are now accepted as normal, and can be attractive. While not taking a stand on their merits, the American Orchid Society refers to peloric flowers as deformed, and this term may be misapplied. Deformity in the dictionary is: a physical blemish or distortion, disfigurement. Examples of deformity are: a split dorsal or ventral in Paphiopedilums, a flower that possesses two columns, or a flower where floral parts may be physically missing. Peloric flowers are mutations that have occurred, whether naturally or induced, in orchid flowers, and mutations are a part of evolution. AOS judging criteria for quality is based on recognizing superiority and improvement of a given type of flower over previously awarded flowers, or similar lines. The AOS Handbook on Judging and Exhibition states: "new lines of breeding, including new shapes,...should be considered but should not be awarded unless the new line has superior characteristics and quality." Peloric flowers can be considered a new shape or line of breeding, but whether they are a superior form, or possess good quality is a controversy.

Occurrences of peloria in orchids have led to cultivation and new lines of breeding. In addition to the previous examples, *Rhyncholaelia digbyana* var. *fimbripetala* has slightly fimbriated petal margins, which can be transferred to its progeny, has given rise to a host of modern splash-petal hybrids, many having received AOS quality awards. There are many awarded splash-petal Cattleyas, and Cattleya breeder Frank Fordyce cherishes these "clowns" of the orchid world whose "normal beauty is further enhanced." *Phragmipedium lindenii* has a long petal in place of a pouch, and is highly prized. This feature has not as yet been transferred to offspring.

In horticultural circles we have come to accept if not prefer various mutations. We have come to cultivate natural mistakes of plants found in nature, such as the Double Bloodroot, the Variegated Solomon's Seal, or the Trillium with green sepals. There are many cases where man has purposely bred these mutations. A fasciation in

Celosia has led to the Cockscomb types, while the mistake where disk florets have become ray florets has led to the doubling of many flowers in the asteraceae: marigolds, zinnias and chrysanthemums. One of the most favorite of flowers, the rose has had stamens modified into petal-like structures. There is also a large nursery industry in finding and propagating sports and mutations of "normal plants." Curiosities such as the Weeping Pussy Willow, or the contorted Henry Lauder's Walking Stick can now be easily obtained. This is not to say that all mutations are favorable, but that they are a normal occurrence both in nature and in cultivation. There are many people that purposely search out these oddities of nature.

Peloric orchids are an interesting debate with AOS orchid judges. Some hate 'em, some love em. Unfortunately, the AOS Handbook on Judging does not mention or deal with peloric flowers, but what we consider the norm for each group. The *Cattleya* section tells us that "petals should be erect to slightly arched, broad and rounded, frilled, or undulated at the margins according to the variety." But if the parent variety is peloric than shouldn't the norm for it and its offspring also be peloric? Judging peloric flowers should be like judging any other orchid flower, the flowers should be symmetrical, consistent from one flower to another, have clear color and crisp markings, and an overall pleasing appearance to the eye. This last part though will always be the difficult part, as what is pleasing to one persons eye may be dreadful to another. Because peloric orchids are here to stay, we should judge the pelorics as what they are, and compare them with other pelorics, not the "normal" orchids. As long as they possess the other qualities we want, they should be awarded or not awarded accordingly.

But the average grower probably doesn't care if the plant is worthy of an AOS award, so as for answering that last question: If you like it, buy it! ♦

There are several articles on peloric orchids in the AOS bulletin:

Fordyce, Frank, "*Splash-Petal Cattleyas, Colorful Clowns of the Orchid World*, V49, #11, November 1980.

Griesbach, Robert J., "*Beauty and the Beast*," V64, #4, April 1995.

Manuel, Mrs. P. K., "*Phalaenopsis Intermedia - 'Star of Leyte'* " V43, #11, November 1974.

Weingartner, Dr. D. Lawrence, "*A Case of Peloria and a Case for Mutants*," V52, #7, July 1983.

**ALEX CHALLIS**

References: Challis, A. 2005. **Excessive lip service: peloric orchids**

<http://angrek.com/AAOS/Past/9802/Txt/Peloria.html>.

