



*Primulina  
'Blue Moon'*



**"Gesneriads - A Family Portrait"**

**When: July 8, 2017**

**10:00 to Noon**

**The Fountains**

**Presenter: Ken McGowan**





## Gesneriads - A Family Portrait

It is mostly for the flowers that we grow them, and it is mostly by the flowers that we know them.

...are members of a large group of flowering plants (order Lamiales) whose petals are fused into a tube.

...have flowers with mirror-image symmetry, the right side being a mirror image of the left. Such flowers are called *zygomorphic*.

### **Family Characteristics**

There are approximately 3,300 known species of gesneriads worldwide found on all continents except Antarctica.

Gesneriads are tropical to subtropical (rarely temperate or alpine) herbs, lianas (vines), shrubs, and rarely small trees.

They can be terrestrial, epiphytic (growing on trees), or lithophytic (growing on rocks).

Their leaves are often hairy and usually opposite, but in some species are alternate or arranged spirally in a tight rosette.

The flowers are usually zygomorphic and are found in an enormous range of colors and patterns, and they are nearly always showy.

The seeds are extremely tiny and numerous.

### **Position Within the Plant Kingdom**

The closest relatives of Gesneriaceae are the other families within the group known as Lamiales, most of which have zygomorphic flowers.

This group includes some familiar plants such as penstemons, snapdragons, calceolarias, mulleins, and foxgloves, members of what used to be the large family Scrophulariaceae (which has now been broken up into smaller ones).

Other plants in the Lamiales include the trumpet vines (Bignoniaceae), verbenas and lantanas (Verbenaceae), sesames (Pedaliaceae), and the carnivorous bladderworts and butterworts (Lentibulariaceae). Most of them are characterized by particular specializations that gesneriads lack, but gesneriads have several specializations of their own.

Gesneriaceae is now thought to be one of the oldest families within this group.

## Kinds of Gesneriads

There are various ways of dividing up the gesneriad family. Botanists refer to "Old World" (native to Europe, Asia, Africa, and Oceania), and to "New World" (native to the Americas).

Horticulturists often refer to gesneriads by the various habits of growth to be found in this large family:

For example, gesneriads have been divided into the kinds with tubers, those with rhizomes, and those with only fibrous roots. Of course, all gesneriads have fibrous roots (both rhizomes and tubers are actually modified stems rather than roots).

One other group of cultivated gesneriads is are those that are hardy, or semi-hardy, in freezing temperatures.

### Gesneriads with Fibrous Roots Only

Lacking either tubers or rhizomes, by far the greatest number of gesneriads do not have any underground storage structures.

In the wild they may be terrestrial or may grow in crevices of the bark of trees (epiphytic) or in rocks (lithophytic).

They may be annuals or herbaceous or woody perennials.

Most familiar is the African violet (*Saintpaulia*), usually grown from leaf cuttings. All can be raised from seed, and their culture is similar to other gesneriads. Growth habit varies from rosette, such as some Primulinas and most Saintpaulias, to the vining (or shrubby) Columneas, Aeschynanthus, or Episcias, and to woody plants like Cyrtandras. Fibrous-rooted gesneriads (not forming tubers or scaly rhizomes) better known in cultivation include:

*Aeschynanthus*

*Alloplectus*

*Alsobia*

*Chirita* (now *Primulina*)

*Chiritopsis*

*Cobananthus*

*Codonanthe*

*Columnea*

*Corytoplectus*

*Creмосperma*

*Dalbergaria*

(=*Columnea*)

*Drymonia*

*Episcia*

*Gasteranthus*

*Gesneria*

*Mitraria*

*Moussonia*

*Napeanthus*

*Nematanthus*

*Neomortonia*

*Paliavana*

*Paradrymonia*

*Pentadenia* (= *Columnea*)

*Petrocosmea*

*Rhytidophyllum*

*Rufodorsia*

*Saintpaulia*

*Sarmienta*

*Streptocarpus*

*Trichantha* (= *Columnea*)

*.Codonatanthus*

*.Rytidoneria*



*Aeschyanthus*

*Alsobia*



*Columnea*

*Episcia*



*Nematanthus*



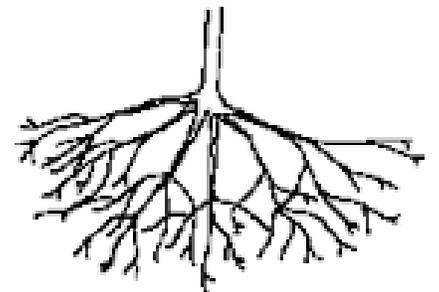
*Streptocarpus*



**Primulina  
'Naine Argente'**



*Saintpaulia*



**FIBROUS**

## Gesneriads with Scaly Rhizomes

Rhizomes grow underground at the base of the stem, or occasionally in the leaf axils on some species. Rhizomes remain alive during the dry season in the wild and serve as a means of propagation.

Gesneriads that produce scaly rhizomes are usually terrestrial plants growing in humus on steep slopes and cliffs or in crevices of rocks. Their requirements for soil and moisture are like those of other gesneriads, but they withstand wider extremes of temperature and light. Most require a period of dormancy that is brought on by short days, and especially by drying of the soil.

When plants become dry and dormant, the rhizomes may be left in their pots and stored in a cool place, about 45°F (7°C). They should be repotted and brought into warmth, humidity and light in early spring.

Some (for example, *Achimenes* and *Smithiantha*) require this dormancy period and have one growth/bloom cycle per year.

Others, like *Kohleria*, will continue to grow and bloom year round under the right conditions.

With the exception of *Titanotrichum*, all scaly-rhizomatous gesneriads are native to the New World.

Several Old World genera, including *Lysionotus*, *Hemiboea*, *Anna*, and *Raphiocarpus*, make smooth creeping rhizomes or runners that are different from the scaly rhizomes found in New World genera.

Gesneriads in cultivation with scaly rhizomes include:

*Achimenes*  
*Amalophyllon*  
*Diastema*  
*Eucodonia*  
*Gloxinia*  
*Gloxinella*  
*Gloxiniopsis*  
*Heppiella*  
*Kohleria*  
*Mandirola*  
*Monopyle*  
*Niphaea*  
*Nomopyle*  
*Pearcea*  
*Phinaea*  
*Seemannia*  
*Smithiantha*  
*Sphaerorrhiza*  
*Titanotrichum*

*Intergeneric gesneriads (hybrids between two genera) with scaly rhizomes include:*

*xAchicodonia*  
*xAchimenantha*  
*xGlokohleria*  
*xGloximannia*  
*xGloxinantha*  
*xGloxinistema*  
*xHeppimenes*  
*xNiphimenis*  
*xPhinastema*  
*xSeemakohleria*  
*xSmithicodonia*

**RHIZOMES >>**





*Gloxinia*



*Smithiantha*



*Kohleria*



*Niphaea*



*xPhinastema (intergeneric hybrid)*



*Titanotrichum*

## Gesneriads with Tubers

The tuber is actually the base of the stem, swollen and modified to store food. It remains alive during periods of the year unfavorable for growth in the wild.

Under cultivation, *Sinningias* respond to the general culture for gesneriads and, after flowering, generally become dormant for a few weeks or months until new growth starts again.

Tubers may be stored away from light in their original pots, or in vermiculite, at a temperature of about 55° – 60°F (13-16°C). They should be watered sparingly, just enough so the tubers do not dry out completely.

By cutting back the old growth after flowering, new shoots often will appear and continue to grow if the plant is watered and fertilized.

Gesneriads in cultivation with tubers include:

***Chrysothemis*    *Nautilocalyx*    *Sinningia***

These are all New World genera. Many of the species in the genus *Sinningia* form large tubers and often can be treated as caudiciform (having a thickened woody base) succulents.

Most tuberous gesneriads are adapted to marginal or difficult habitats. They generally require a well-drained mix, are fairly tolerant of both underpotting and drying out (which makes them good for beginners), and often have a dormant period.



*Nautilocalyx*

*Chrysothemis*



*Sinningia*



**TUBERS**



# General Gesneriad Culture

Most gesneriads will thrive on conditions that are easy to attain in the home.

## **Temperature**

Most gesneriads are well-suited to life in the home. Normal home temperatures are usually acceptable for gesneriads. Daytime temperatures of 65° to 75°F, with a 10° drop at night, are considered ideal for most gesneriads. Some require higher temperatures, others will accept much lower ones. Avoid hot or cold drafts, such as heating or cooling vents or open windows or doors. Overall, if you are comfortable, your plants will be also.

## **Water**

Water your plants when the top of the soil is dry, using room temperature water. Soil should be moist but not wet and soggy; excess water must drain out the bottom of the pot. Minerals in well water or softened water may be detrimental to plants. Some gesneriads like *Gesnerias* require continuous amounts of water. Others, like *Achimenes*, become dormant if allowed to dry out even once.

## **Light**

For healthy plants and abundant blooms, your gesneriads must have good, bright light. Some gesneriads will tolerate or do quite well in a moderately sunny window as long as the temperature isn't too high and water requirements are met. If necessary, shade the plants with a curtain, or move them away from the window. Most gesneriads grow and bloom very well under artificial lights. Fluorescent light setups are available at many department stores and nurseries or you can construct your own. Cool white lamps are adequate, but more expensive daylight types exist that better simulate natural light. Two 40-watt lamps will be enough for a 2×4-foot growing area. Lights should be turned on for 12-16 hours per day. Lights should be hung an average of 8-16 inches above the plants.

## **Humidity**

Most gesneriads come from humid tropical areas. An average humidity of 50% will keep your gesneriads happy, however many will bloom better with even higher humidity. To maintain this level during the dry winter heating season, place the pots on a tray filled with damp pebbles or use capillary matting. Also try draping plastic over the light fixtures and growing area to retain humidity.

## **Fertilizer**

A constant feeding method is recommended for gesneriads, using any good 20-20-20 or 15-30-15 fertilizer. Use one-tenth to one-quarter the strength recommended on the label directions. Use this strength every time you water your plants, but once a month use plain water to flush out accumulated salts.

## **Repotting and Mix**

As a plant grows, a larger pot may be needed to maintain a healthy root system. Periodically examine the root system by carefully removing the plant from its pot. If the root ball is very tight and overgrown, it's time to repot into the next size pot. The growing medium must be loose and porous to retain moisture, yet provide good drainage. Use any of the prepared African violet mixes, with some perlite mixed in to lighten the soil. Some growers use custom soil mixes that they have prepared themselves. These mixes may be more compatible with their particular growing environment and watering habits.

## **Gesneriad Propagation**

Gesneriads are among the easiest plants to propagate. This is one reason for their immense popularity. From even the smallest cutting, it is possible to grow another plant. Gesneriads are easily shared among growers.

### ***From Seed***

Growing gesneriads from seed is simple and does not require fancy or expensive equipment. Many new or rare species of gesneriads would be hard to obtain, were it not for the availability of seed. One of the best sources of seed for Gesneriad Society members is our Seed Fund. Most hybrids will not produce true from seed. Hybrids grown from seed should not be labeled as if they were the same as the parent plant.

There are many seed-starting mixes and most growers have their favorite. One of the most popular is a standard soilless mix. Other growers used a combination of vermiculite and perlite. Still others spread a thin layer of milled sphagnum moss on the surface of the mix. You may want to try several methods to find out which works best for you.

Gesneriad seed is very fine. The seed should be sprinkled on the surface of the moistened growing medium. Be sure to moisten the mix before you sprinkle the seed. Some growers water from the bottom after they spread the seed. Whatever method you choose, be careful not to wash the fine, dust-like seed away. Next, it is very important to label the pot. Gesneriad seedlings look very similar and you do not want to lose the name for your new plants.

The pot containing the seeds should be enclosed to preserve the humidity. This can be done by enclosing the pot in a plastic bag, or by placing the pot in a clear container. Place the enclosed pot in a bright area, away from drafts and direct sunlight. Most gesneriad seeds will germinate in a few days to a few weeks. Some may take several months. Be patient and do not give up on your seeds too soon.



Gesneriad Seedlings

Once the seedlings have developed their first set of true leaves, they should gradually be acclimated to growing in the open. Do this slowly over several days. Open the container a tiny bit, opening it more each day. Once the seedlings become large enough to handle, they may be transplanted to individual pots and treated as mature plants.

## ***From Cuttings***

The most common method for propagating gesneriads is from cuttings. Almost any gesneriad can be propagated from stem or leaf cuttings. With this method there are many “favorite” growing mixes. Many growers use a soilless mix, the same mix in which the established plants will be growing. Other growers use vermiculite, perlite, sphagnum moss, or a combination of these ingredients. Again, experimentation is the key to finding which medium works for you.

Stem cuttings are very easy to root. To do so, take a cutting with at least three leaf nodes, although many gesneriads will root from smaller cuttings. Strip the leaves from the lower portion of the stem and place this end in the rooting mix. Larger cuttings may be divided into smaller pieces. It is not necessary to use a rooting hormone with most gesneriads. Moisten the mix, label the pot, and enclose it to maintain high humidity. Some cuttings will begin rooting in just a few days, while others may take several weeks. When the cutting feels secure in the mix when lightly tugged, acclimate it to life in the open and treat it as a mature plant.



Stem Cuttings

## ***From Leaves***

Leaf cuttings can also be used to propagate many gesneriads. One way of doing this is to stick the leaf petiole in the rooting mix. The baby plants will develop at the base of the stem. This is the method most commonly used to propagate Saintpaulias (African violets.) Another method, often used for propping *Streptocarpus* (Cape Primroses) is to cut the leaf along both sides of the mid-vein. The two leaf halves are placed cut edge down in the rooting mix. The plantlets will develop along the cut edge. Leaves may also be cut into wedges across the mid-vein, and the cut edges are placed on the growing mix. This is a popular method for growing many varieties of *Nautilocalyx*.



Leaf Cuttings

## ***From Rhizomes***

Rhizomatous gesneriads provided an additional method of propagation. Besides stem cuttings as described above, they may also be propagated by rhizome division. The rhizomes can be divided into sections and each section will produce a plant. Additionally, each individual scale on a rhizome can be used to produce a plant. Sprinkle the individual scales on the surface of the growing mix as you would with seed. The scales will soon develop tiny plantlets. Propagules are stringy rhizomes that form along the stems of many rhizomatous gesneriads. These, too, can be divided just like the rhizomes.



Rhizomes

## ***From Crown Cuttings***

Sinningias, including the widely popular mini-sinningias, can be propagated by crown cuttings. The crown is removed from the tuber. The lower leaves are removed and the cutting is placed in the rooting mix. Plants that form offsets, or stolons, such as primulinas and episcias, can be propagated by removing the offsets or stolons and rooting them in much the same manner.



## **Where to Get More Information:**

### **The Internet:**

The Gesneriad Society (<http://www.gesneriadsociety.org>)...

Gleanings – free monthly publication (sign up on TGS webpage)

Quarterly hard copy or digital publication (membership required)...you can download a sample copy from their website

Try a Google search or other internet browser...

Facebook ( many different groups – just put in a search for what your interested in, for example African Violets, Episcias, Sinningias, etc.

### **Supplies:**

Most gesneriads use the same supplies as AVs...

### **Buying Plants:**

For club members at sales and show...

Ebay is a good source

AV Commerical Growers have very good selections

### **Email:**

Go to this link and ask to be added to these email....I get them and a lot of pictures, culture info, and questions and answers from this group of gesneriad hobbyists

<http://lists.ibiblio.org/mailman/listinfo/gesneriphiles>