INTRODUCTION TO GESNERIADS

The gesneriad family, Gesneriaceae, was named for the Swiss botanist, scientist and bibliographer Konrad von Gesner (1516 - 1565). It contains more than 145 genera covering almost 4,000 species of plants. The best known member of the gesneriad family is saintpaulia (African violet). In addition to saintpaulia, some of the other commonly grown gesneriads are streptocarpus (cape primrose), aeschynanthus (liptstick plant) and sinningia (florist's gloxinia).

Gesneriaceae is a neo-tropical plant family which contains a great diversity of plant sizes, and growth habits, as well as numerous flower types and colours. In addition, a number of gesneriads have scented or fragrant foliage and flowers. Gesneriads have been extensively hybridized, resulting in thousands of cultivars that are quite distinctive from their natural ancestors and relatives.

In the evolution of Earth's organisms, the gesneriad plant family is a young group. It is, nonetheless, one of the most highly advanced plant families within the angiosperms (flowering plants). Classifications of the family are based on geography, cotyledon (seed leaf) characteristics and numerous floral and vegetative criteria and factors.

GESNERIAD TREE OF LIFE

Kingdom: **PLANT**

- Sub-Kingdom: **EMBRYOPHYTA**
  - Terrestrial or land plants which produce embryonic seeds.
- Division: **TRACHEOPHYTA**
  - Plants with specialized cells for different functions (vascular plants).
- Class: **ANGIOSPERMAE**
  - Plants which produce flowers.
- Sub-Class: **DICOTYLEDONAE**
  - Two cotyledons or seed leaves emerge together from the seed when germination occurs.
- Family: **GESNERIACEAE**
  - Named for Konrad von Gesner who first recognized these plants as distinct from all other known plants.
  - Commonly referred to as gesneriads.
  - Gesneriads are divided into three subfamilies and are classified as either New or Old World.
  - Old World Gesneriads include those genera which are endemic to Europe, Asia, and Africa.
  - New World Gesneriads include those genera which are endemic to Central & South America, and Hawaii. With the exception of Mexico, no gesneriad is endemic to North America.
- Subfamilies: **GESNERIOIDEAE & CORONANTHEROIDEAE** (New World Gesneriads)
  - Gesnerioideae contains 5 tribes: Gloxineae, Episcieae, Beslerieae, Napeantheae, & Gesnerieae. Examples of member-genera include columnea, episcia, achimenes, sinningia & kohleria.
  - Coronantheroideae contains 1 tribe: Coronanthereae. Examples of member-genera include fieldia, mitraria and sarmienta.

- Subfamily: **CYRTANDROIDEAE** (Old World Gesneriads)
  - Cyrtandroideae contains 4 tribes: Cyrtandreae, Trichosporeae, Klugieae, Didymocarpeae. Examples of member-genera include aeschynanthus, chirita, saintpaulia, streptocarpus and petrocosmea.

GESNERIAD ROOT STRUCTURES

All gesneriads have fibrous roots. However, some genera such as kohleria and sinningia also develop adventitious roots, i.e., rhizomes and tubers, which originate and grow from parts of their stems. These root structures are formed where and when a survival adaptation is required during periodic dry or drought seasons.

Gesneriads form rhizomes when underground stems and leaves are converted to storage organs. Plant material classed as rhizomatous, i.e., forming rhizomes, includes achimenes, kohleria, smithiantha, and diastema.

Gesneriads form tubers when their stem bases become enlarged and are converted to storage organs. Plant material classed as tuberous, i.e., forming tubers, includes sinningia, nautilocalyx and chrysothemis.

GESNERIAD GROWTH HABITS

Gesneriads exhibit four basic growth patterns: rosette, cone, fountain, and helix. Most, but not all, gesneriads conform to these simple geometric concepts. Cultural conditions, age of specimen, limitations of growing space and grower's preference all influence the type and degree of growth pattern produced.

Gesneriads exhibiting a rosette growth pattern grow outward and flat from a central point, e.g., petrocosmea, sinningia and saintpaulia.

Gesneriads exhibiting a cone pattern grow outward as well upward following an elongated centre axis, e.g., smithiantha and gloxinia.

Gesneriads growing in a circular form with leaves and stems arching up from a central point grow in a fountain pattern, e.g., streptocarpus, while plants with elongated stems of varying length, usually trailing, and leaves little differentiated from one end of the stem to other are said to be helix, e.g., columnea and aeschynanthus.

GESNERIAD CULTURAL REQUIREMENTS

Gesneriads provide hobbyists with blooming plants of one type or another throughout the year, an especially welcome sight during the Winter. Many of the easiest and most beautiful plants for the home or greenhouse belong to the gesneriad family. When growing gesneriads it is important to remember that most gesneriads are from tropical and subtropical regions, mostly found either growing in humus-filled depressions and crevices or epiphytically on tree branches. Good gesneriad culture covers seven factors: temperature, water, light, humidity, fertilizer, soil and propagation.

Temperature

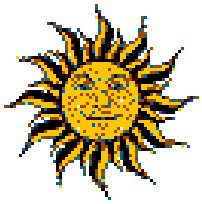
Most gesneriads are well-suited to life in our homes. Normal house temperatures are usually suitable for gesneriads. Daytime temperatures of 70 to 80 degrees Fahrenheit, with a 5 to 10 degree drop at night, are considered ideal for most gesneriads. Some require higher temperatures, others will tolerate much lower ones. Avoid hot or cold drafts, such as furnace vents or open doors. Overall, if you're comfortable, then your plants will be as well.

Water

Water your plants when the top of the soil is dry, using slightly warmed or room temperature water. Soil or growing medium should be constantly moist but not wet and soggy; excess water must be permitted to drain out of the bottom of the pot. Most gesneriads require continual amounts of water. Inadvertently allowing tuberous and rhizomatous gesneriads to completely dry out will initiate dormancy.

GESNERIAD CULTURAL REQUIREMENTS

Light



For healthy plants and abundant blooms, gesneriads must have good, bright light. Most gesneriads will tolerate or do quite well in an east or west window as long as the temperature isn't too high and their moisture requirements, i.e., humidity and watering, are met. If necessary, shade the plants with a curtain, or move them back from the window. Most gesneriads grow and bloom extremely well under artificial lights. Fluorescent light set-ups and stands are commercially available or you can construct your own. "Cool White" types of lamps provide the most satisfactory results, although more expensive "daylight simulant" or wide spectrum, e.g., GroLux, tubes are available. A shop or strip fluorescent fixture holding two 40 or 34 watt lamps will provide enough light to adequately illuminate a 2' x 4' growing area. Lights should be turned on for 12-16 hours per day and be hung an average of 8 to 16 inches above the tops of plants.

Humidity

Most gesneriads originate in humid tropical areas. An average humidity of 30 to 50% will keep your gesneriads happy. To maintain this level during the dry winter heating season, place the pots on trays filled with damp aggregate. Running a humidifier or misting daily will also help alleviate dry atmospheric conditions.

Fertilizer

A constant feeding method is recommended for gesneriads, using any good non-urea-based fertilizer, e.g., Dyna Gro. Depending on the gesneriads being fertilized, use one-half to one-quarter the strength recommended on the label directions: generally speaking, tuberous and rhizomatous gesneriads require more fertilizer and at a higher strength than non-tuberous/rhizomatous gesneriads. Use this strength every time you water your plants, but once every 6 to 8 weeks flush out accumulated salts by watering with plain water.

Repotting/Soil

As a plant grows, a larger pot and new soil or growing medium will be required to maintain a healthy root system. It's time to repot upward into the next size pot when the root ball is tight and slightly overgrown, usually 2 or 3 months from the previous transplanting. Growing medium must be friable and porous to retain moisture, yet provide good drainage. Any prepared African violet mix, with some perlite and vermiculite mixed in to lightened it up can be used. Many growers use custom soil mixes which they prepare themselves. These mixes have been specially adapted to meet the demands of their particular growing environment and watering habits. A locally-tested growing medium of 3 cups peat moss, 1 cup each of vermiculite and perlite and 1/2 cup of charcoal will produce successful results.

Propagation

It is very easy to propagate gesneriads. They have the unusual capacity of vegetative reproduction by tubers, rhizomes, stolons, leaves or tip cuttings. Leaf, stem and crown cuttings as well as tubers and rhizomes can be placed in a covered, soil-filled pot until roots have formed. Gesneriads can also be grown from seed, although modern hybrids will not reproduce true from seed.

GESNERIAD SOCIETIES AND ORGANIZATIONS

American Gloxinia and Gesneriad Society
Membership Chair,
118 Byron Avenue,
Lawrence, Massachusetts
01841-4444 USA

African Violet Society of America
2375 North Street
Beaumont, Texas
77702 USA

Vancouver African Violet & Gesneriad Society
Membership Chair,
7820 - 17th Avenue
Burnaby, BC
V3N 1M2

RECOMMENDED READING RELATING TO GESNERIADS

The Miracle Houseplants: The Gesneriad Family
Virginie and George Elbert, 1976, 1984
Crown Publishers Inc, New York, USA

African Violets
Melvin J. Robey, 1980
AS Barnes and Company, San Diego, USA

African Violets: Gifts From Nature
Melvin J. Robey, 1988
Cornwall Books

Handbook on African Violets and Their Relatives
Brooklyn Botanical Garden, 1967, 1976, 1978, 1984
Brooklyn, New York