PROMISING ANTHURIUM SPECIES AND HYBRIDS FOR THE NURSERY INDUSTRY

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Abstract. The Fort Lauderdale Research and Education Center has maintained a large collection of anthuriums obtained through plant collecting expeditions to the Caribbean, Central America, and South America. A number of these species exhibit potential for use by the nursery industry as both foliage and flowering pot plants. In addition, several crosses have been made that have resulted in interspecific hybrids with characteristics desirable for nursery production.

Several crosses have resulted in plants with showy flowers and attractive foliage. Other hybrids have large, bold foliage suitable for interior spaces or landscapes in warm climates. At least one cross has produced plants that have potential for cut flower production. Rapid propagation of anthuriums by tissue culture could make these anthuriums readily available to the Florida nursery industry.

Anthuriums comprise a large plant genus of over 600 species in the Araceae (Aroid Family) (1). They are native to tropical America where they generally grow under low light conditions. Depending on the species, they grow as either epiphytes or as terrestrial plants. Some species have attractive flowers while others have beautifully patterned or shaped leaves. These attributes make them ideal candidates for use under interiorscape conditions.

Anthurium andraeanum Linden is the most widely cultivated species. Most people are familiar with the red, pink, white, or bicolored flowers produced by this plant. Many cultivars of A. andraeanum have been developed, particularly in Hawaii. A substantial nursery industry has developed in Hawaii, Central America, and on several of the Caribbean Islands, exporting cut flowers of this species. Unfortunately the cultural requirements and slow rate of growth make this plant unsuitable for pot culture. For over 10 years the Fort Lauderdale Research and Education Center has maintained a program of collecting and evaluating new ornamentals for the nursery industry. Many species of anthurium have been collected and are under cultivation both in the landscape and in containers at the Center. Some of these species and interspecific hybrids that have resulted from crosses performed at the Research Center show promise as ornamental plants.

Culture of Anthuriums at the Ft. Lauderdale R.E.C.

Because the anthurium collection is maintained with many other species of plants of various sizes in the Research Center shadehouse it is necessary to apply approximately 1.5 cm of water through an overhead irrigation system every day unless it rains. Under these conditions, anthuriums grown in typical soilless container media will stay too wet, encouraging root diseases and poor growth. For this reason an extremely well-drained material has to be used. One material that has consistently produced high quality plants under these conditions has been AliFlor (AliFlor Corp). This product consists of spherical particles that are approximately 7-10 mm in diameter and is produced by firing a clay material at high temperatures. No other potting media such as bark, perlite, or peat should be added to this product since they can reduce the air space and can decompose over time, impeding drainage in the container.

Fertilizer is supplied using Osmocote (Sierra Chemical) 17-6-10. This formulation also contains magnesium and micronutrients. The fertilizer is applied at the highest recommended rate using a modified dibble method. This is accomplished by filling the container 1/4 full with AliFlor, adding the fertilizer in an even layer, and then placing the plant in the container while adding more AliFlor. Other potting media and fertilizer practices will work equally well if stricter control of watering is practiced.

Insecticides are used occasionally for control of scale insects. Slug bait is used frequently as these pests will quickly defoliate a plant. No pesticides are used for disease control although bacterial diseases are obvious on certain plants after long periods of rain and some plants undoubtedly contain viruses.

Description of Selected Species and Hybrids

Anthurium bonplandii subsp. guayanum (Bunting) Croat. (formally A. jenmani) This is a relatively new species in cultivation from the Venezuelan highlands. It has a birdsnest growth habit and heavy oblanceolate leaves (40 cm long) with acute tips. The petiole is nearly sessile and the leaf base is rounded. The spadix and spathe are dark green and not particularly showy although the spadix does enlarge considerably when ripe with purple fruit. The most spectacular feature of this plant is the emerging new leaves. They are a deep scarlet red and remain that color until the leaf is fully developed. This trait can be seen with the emergence of the second leaf in seedlings. The color of the new leaf can be quite variable in seedlings. Anthurium bonplandii selfs readily and the seedlings are easily raised. Unfortunately they grow too slowly to have any commercial value.

Anthurium superbum Madison. This Ecuadorian species of anthurium has a birdsnest habit and is grown for its attractive foliage. The oblong leaves, with both acute leaf tips and leaf bases can grow to over 50 cm. Leaves are stiff with a corrugated texture and have a prominent raised midrib on both the upper and lower leaf surface. The leaves are short petioled and very dark green in color. The non-showy inflorescence is borne on a short peduncle. Anthurium superbum plants will not set seed until they are quite large which requires 2½-3 years. Their slow rate of growth will probably exclude them from commercial consideration although they do respond to a good fertilization program.
Anthurium clarinervium Matuda. This species of anthurium from southern Mexico has been in cultivation for many years. The leaves, on round stems, are ovate with a cordate base and acute or acuminate apex. They can grow 18-20 cm long in mature specimens. The emerald green leaves are marked with contrasting silvery midribs and lateral 4 veins. The spathe is light maroon with a dark spadix. Anthurium clarinervium sets seed readily but produces few seed per inflorescence. The seed is fairly large for anthuriums (4-5 mm) and germinates rapidly, but growth of the seedlings is fairly slow. Selections have been made of this species that have varying degrees of the silver pattern in the leaf. A few nurserymen have produced this species in limited numbers and promoted them during Valentine's Day because of the perfect heart-shape leaves.

Anthurium crystallinum Linden & Andre. This anthurium is native to Colombia and is similar to A. magnificum except for its round stems. The foliage is dark green with silvery midribs and lateral veins. The length of the leaf can exceed 50 cm. The inflorescence consists of a green reflexed spathe and slender yellow-green spadix. Peduncles are long and cylindrical and up to 60 cm long. Anthurium crystallinum sets seed readily and has been used as a parent in a number of hybrids. Seedlings are slow growing at first, but after 6 months they grow more rapidly. Seedlings from selfed plants show some variation in the silvery pattern of the leaves.

Anthurium dressleri x crystallinum. This hybrid originated at the Marie Selby Botanical Gardens in Sarasota, FL. Leaves have cordate bases with acute to acuminate apices as in A. crystallinum. The petiole and peduncle are angular. The leaves do not have the silvery pattern of A. crystallinum, but are a rich deep velvety green with pronounced veins. New leaves are dark red and retain that color until the foliage matures. This is also a trait of A. dressleri Croat. Leaves grow to 50 cm long and the spathe is pinkish-green with a darker spadix. This hybrid tends to produce offset freely and mature seed grows fairly true to type. Rate of growth is similar to that of A. crystallinum.

Anthurium holtsonianum Schott. This Colombian anthurium has large palmately compound leaves that are pinately lobed. Leaflets can grow to 60 cm producing leaves up to 1 m in diameter on petioles 90 cm long. Although this species will climb on a tree it has short internodes and up to 1 m in diameter on petioles 90 cm long. The flowers are not showy and rarely set seed.

Anthurium salviniaceae Hemsl. This giant birdsnest type anthurium is from Guatemala. Some material cultivated under this name may actually represent other similar looking species. The stems are short (15 cm) and the leaves are elliptic-oblong to 160 cm. A prominent triangular midrib is present on the upper surface of the leaf while on the underside the midrib is oval. The spathe is lanceolate, to 20 cm, brown-purple, and the spadix is as long as the spathe. This anthurium is well adapted to South Florida landscapes as long as it is located in a shady protected area. The birdsnest form of this plant allows it to catch old leaves from overhead trees and this encourages the growth of roots from the base of the plant. Seedlings grow fairly rapidly. This and similar species of large birdsnest anthuriums could be more widely grown by the nursery industry for both the interiorscape and landscape.

Anthurium veitchii M. T. Mast. This Colombian anthurium has leaf blades that are reflexed-pendant, oblong to 100 cm long and 25 cm wide, sagittate, with many downward-curling lateral veins. The leaves are puckered or fluted between the veins giving the leaf a quilted appearance. A well-grown specimen of this epiphytic anthurium is very beautiful, but unfortunately it is very slow growing, requires lower light than most species of anthuriums, and generally has blemished leaves. The small spadix is white with a light green spathe.

Anthurium x mortefontanense (A. andraeanum x veitchii). This hybrid of unknown origin came from the collection of Bob Wilson in Costa Rica. The cross was performed many years ago and was one of the first to incorporate the leaves from an attractive foliage anthurium with the showy flowers of A. andraeanum. The foliage is similar to A. veitchii only a little shorter (60-90 cm). The quilting of the surface of the sagittate leaves is not quite as pronounced as in A. veitchii and the large inflorescence has a showy pinkish-red spathe with a cream-white spadix. This plant is relatively easy to grow but its open habit does not make it an attractive pot plant. Offshoots arise occasionally and the plant appears to self-pollinate, producing seedlings that are almost identical to the parent.

Anthurium antrophyoides Killip. This small anthurium from Colombia has attractive, long, elliptic leathery leaves (to 15 cm) with depressed parallel veins and a 10 cm petiole. The showy flowers have a white spathe and light purple spadix. This anthurium is easy to grow and flowers continuously. It is not unusual for a single stem to have 3-4 flowers open in various stages. The plant produces offsets, but not abundantly enough to produce a very full plant. This species has been a very good mother plant in producing hybrids as it crosses readily with a wide range of species. Seedlings are slow, with only moderate growth as they mature. Some of the hybrids are much better suited for container production.

Anthurium antrophyoides x andraeanum. This hybrid is generally free-branching, producing a fuller plant. The corotate leaves are 20-25 cm long and show some of the venation of A. antrophyoides. The inflorescence is showy with a large spathe and spadix. Two crosses have been made at the Research Center. In one a white A. andraeanum was used as the male parent and the offspring have a white spathe. The other is with a pink A. andraeanum and the hybrid has a clear pink spathe that fades to white as it matures. Both show some potential as both cut flowers and foliage plants. A local nursery obtained what appears to be a similar cross from Bob Wilson in Costa Rica and has released this as ‘Lady Jane’. The hybrid is free branching and has attractive pinkish-red flowers that lighten as they mature.

Anthurium antrophyoides x amnicola. This hybrid shows great promise as a flowering plant in small containers and as a cut flower. The pollen parent, A. amnicola Dressler

used to be called A. lilacina. Its appearance is similar to A. antrophyoides only smaller. The spathe of the male parent is broader and opens with a fairly dark lilac color that lightens as the flower ages. It also has a pleasant aroma, a feature that is very uncommon among anthuriums. Unfortunately, A. amnicola is difficult to grow.

The hybrid is intermediate in all respects to both parents. The lanceolate leaves grow to about 20 cm and have prominent depressed parallel veins. The flowers are lilac when they first open, fading to white and have a slight fragrance. One superior selection from the seedlings of this cross is very prolific in producing offsets. This plant will quickly fill a 10 cm container within a few months and blooms very freely. It is not unusual for one plant to hold 6-8 flowers at the same time. Flowers are produced year-round.

Anthurium hookeri Kunth. This medium-sized anthurium from the Guianas has the most compact birdsnest form of any species in our collection. The petioles are very short with leaves that are obovate-oblancoate, to 60 cm long and 20 cm wide, acute basally. The leaves are fairly thick and are a light emerald green. The 15 cm long spathe is purplish outside with the lilac spadix extending past the tip of the spathe. Flowers set readily and germination is rapid. The seedlings are fairly slow at first and the species may not be economical to grow as a container plant.

Anthurium watermaliense Hort. ex L. H. Bailey. This Colombian anthurium has reflexed leafblades that are triangular, sagittate, and undulate, to 70 cm long. The basal lobes are separated by a broad V-shaped sinus. The petioles are 50-60 cm long. The attractive recurved, coppery-black spathe is 20-25 cm long and almost half as wide, with a brown spadix. Plants from various collecting trips appear to show considerable variation. The "sculptured" growth form and dark green color of the leaves create an exotic appearance, although the plant has an open growth habit that detracts from its suitability as a container plant. Seed germinates rapidly and seedlings grow fairly fast.

Anthurium hookeri x watermaliense. This hybrid shows great potential as a foliage plant. The large triangle-shaped, sagittate leaves are longer and wider than A. watermaliense. The lobes of the leaves recurve up and the heavy petioles are much shorter than the pollen parent. The thick leaves are very dark green. The undulate spathe is purple and the spadix is dark purple. This cross was made in 1985. Seed was collected in March, 1986. Only one seedling germinated and its growth has been very rapid. After 18 months the plant was over 1 m wide and almost as tall. The bold foliage and compact growth habit make this plant an ideal candidate for container production.


ADVOCACY FOR TREES

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Abstract. Trees cannot communicate their needs directly so they must rely on horticulturists and arborists to serve as their advocates. Private and public sector practitioners must communicate to property owners the health, beauty and liability-reduction benefits of proper tree care, and justify the cost of professional practices. Meeting this challenge will result in a more attractive, healthier landscape for a region whose economy depends so much on its natural beauty to attract tourists.

Trees are the victims of apathy, which is manifested in the butchery of southeast Florida's trees. The primary reason for this apathy is that trees do not have a sufficient number of advocates pleading their cases before the court of public opinion. Advocacy groups have been formed to protect the rights of America's fauna. But, no groups have yet been organized to protect the rights of the nation's flora. The nucleus of such a group is the professional horticulturist and arborist employed in both the private and public sectors.

Members of the Florida State Horticultural Society should actively promote the welfare of ornamental trees and shrubs throughout the state. Society members are knowledgeable about the needs of the state's ornamental plants. They have the credibility to be recognized as viable news sources and to receive speaking engagements. Many also publish or are published on a regular basis. I am challenging Florida State Horticultural Society members to join me and a small group of arborists around the country to take up the cause of plant rights.

This paper cites material from one of the nation's leading authorities on the subject of tree physiology, attitudinal research data from leading opinion research firms and first hand experience to illustrate the need for plant advocacy on a professional and organized scale.

In Palm Beach County, one of Florida's most affluent counties, property owners who care meticulously for their material possessions show little respect for the health of their trees and shrubs. To my knowledge, no scientific studies have been undertaken to determine the reason for public apathy toward trees. Through conversations with property owners and their maintenance employees, we have been able to ascertain, unscientifically, some reasons for this apathy. Some equate ornamental trees and shrubs with forest plants, which possess the ability to care for themselves. Others believe that trees and shrubs grow so fast in our climate that they will rebound regardless of the insults heaped upon them. Others fail to realize that trees are living beings and treat them as they would the inanimate objects in their home. Regardless of the reasons for this misguided attitude, tree survival depends on human advocacy through education.

An increasing body of knowledge is being compiled to substantiate the dangers of many of the arboricultural practices that have become traditional in Florida. Familiarizing yourself with applicable research data and