# BROMELIANA

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## BROMELIADS ARE INDESTRUCTIBLE CONTAINER PLANTS

by Cynthia Percarpio

In the last several years, I have acquired a number of bromeliads which have grown quite beautifully. My favorites tend to be the large urn shaped varieties with colorful spotted or marginated leaves. Unfortunately, since I do not live in a mansion, my space is limited.

I bring a number of them to work in the winter and the remainder find their way into various nooks of my home. Last spring/summer I made use of my lovely collection by incorporating the larger urn shaped varieties into container arrangements. In the past, I've often bought expensive annuals from the garden center, and this year I wanted to try something new and more economical.

*Vriesea* 'Sunset' and variegated ivy

When I bring the plants outside for the first time, I place them in a very shady location for a minimum of three days. Appropriate locations that I've used include a shady porch or under a table that is in the shade. I made the mistake of putting a *Vriesea gigantea* into direct sun after only 24 hours and sadly, it got a severe sunburn, dried up and died because I did not water it in time. (See photo on page 2.)

My front and back yards get good light but are mostly shady with a few areas of direct sun. To make a decorative container, I use an inverted plastic pot to build up the bottom. Then I fill the container with styrofoam peanuts and/or soil and sink the plant (which is usually in a plastic pot) into the container and add the annual or perennial. This way, at the end of the season I can take them out quickly and simply wipe down the pots. Many of my plants that are in basic green pots are put in decorative pots when displayed in my home or workplace.

Each of my lovely broms was featured as the focal point of a container arrangement. Some annuals were purchased to balance the displays. Variegated ivy worked nicely with most broms, as shown in the adjacent photo of *Vriesea* 'Sunset' that was placed in a spot where it got only early morning sun and good light. I also utilized orange hybrid begonias with lovely large double blooms.

One pleasing benefit from placing my collection outdoors is the enhanced colors which result. Although I have a fair amount of sun in my windows, (I do not use florescent lights), the plants never fully color up until they are outside. It is a won-

**NEXT MEETING** - Tuesday, March 5th, 2013 promptly at 7:00 P.M. at the Ripley-Grier Studios 520 8th Ave. (between 36th & 37th St) Room 16P - 16th floor

**PLANTS AND PUPS TO DISCUSS AND SWAP** - Bring in a plant or pups for discussion and/or swap for other plants or pups. There will be lots of plants for sale, so come even if you can't bring a plant. Please bring in plant(s) for sale and for Show and Tell.

*Billbergia* 'Hallelujah'

Burned out *Vriesea gigantea*

*Aechmea* 'Mend' with hybrid begonias

Unknown Aechmeas with Beauty Oregano

derful surprise to see the array of beautiful patterns and colors that are enhanced by outdoor light and moving air.

One arrangement started with a fern as the focal point which worked out very well in the wet spring. Unfortunately, the summer became quite dry and the fern shriveled up after one missed watering. It was replaced with a sturdy *Aechmea* 'Morgana', a gift I had received from Herb Plever a year or two ago. In good light this plant grows rapidly, but with a compact shape.

In our spring plant sale 4 or 5 years ago I and many other members ordered tissue cultures of *Billbergia decora*. The plants were mislabeled and turned out to be *Billbergia* 'Hallelujah' instead. This Billbergia stays mostly green indoors, but in the sunny outdoors it gets very red and spotted as shown in the photo of a few of its pups above left. This is a plant that needs strong light.

*Aechmea* 'Mend' (a cultivar of *Aechmea luedemaniana*) colors up beautifully in outdoor light, and is set off attractively with orange, double-blossomed hybrid begonias. I got this plant and the *Vriesea* 'Sunset' in our plant order; they were bought from Michael's Bromeliads and they are really strong-growing broms.

Interestingly, by the fall, all of the flowering annuals that I had purchased were dead or very unattractive. The bromeliads, on the other hand, looked picture perfect! ❑

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## BROMS WE'D LIKE TO SEE ON THE SPRING PLANT ORDER

by Herb Plever

Now is the time for you to think about plants you may want to buy on the coming spring order. Please bring your list to the March meeting. Providing they are available they will be placed on the order sheet, and you will be able to see photos of them in the video of the plants in the order at the April 2nd meeting .

Availability is the operative word. In some cases broms are not stocked because they are difficult to grow outside of their habitats. Ironically, those are the very plants I am challenged to grow and keep alive until they or their progeny have adapted to my indoor environment. I've tried to grow *Racinaea crispa ,* a small rainforest epiphyte, and I have killed many of them. Now I'm hopeful that we could grow it thanks to a tip from Peter Waters in the January 2013 issue of *BROMELIAD*, journal of the New Zealand Bromeliad Society. He reported seeing a large clump of *R. crispa* in Elton Leme's greenhouse in Brazil; Elton said the secret was to keep it continually damp by standing the pot in a saucer of water. Now we have to find a source to buy it.

The beautiful *Tillandsia dyeriana* is not on any nursery list. It grows in low altitude forests in Ecuador so it can be finicky without high humidity which shouldn't be a problem for nursery greenhouses, but I've grown and flowered it indoors. *Tillandsia atroviridipetala* and *T. fuchsiii v. fuchsii,* both in plentiful supply in habitat and easy growers are not available. There are many nice but unavailable tillandsias such as *T. sucrei, T. heubergeri, T. mauryana, T. matudae, T. oaxacana, T. laxissima, T. turquinensis, T. grazielae* etc., as well as *Vriesea splendens.* We'll have some previously unavailable favorites on the list such as *Vriesea racinae* and *Nidularium innocentii v. lineatum.* (I'm bringing two pups of this plant and 2 pups of *Aechmea* 'Morgana' to the March meeting.) ❑

# **PHOTOSYNTHESIS** (Part 1 of 3 parts)

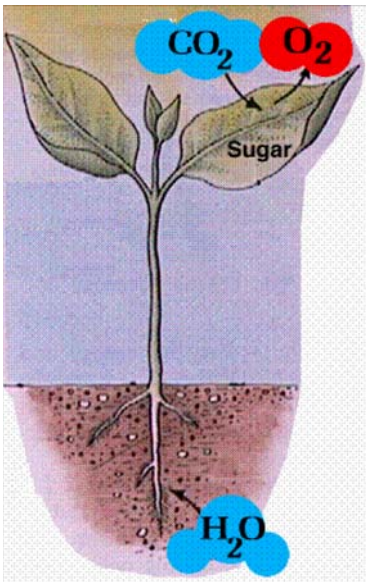
by Don Beard

(Reprinted from the Newsletter of Far North Coast Bromeliad Study Group, N.S.W. Australia, April 2012)

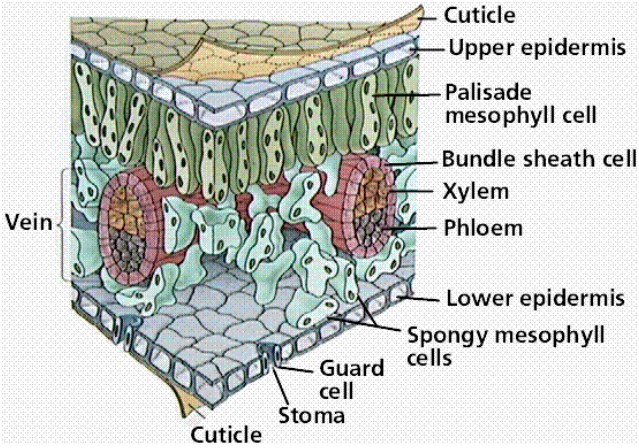
The following presentation was given to FNCBSG(NSW) members as a precursor to an introduction to C4 and CAM plants. It is believed that a basic knowledge of photosynthesis in vascular plants will be a good beginning. The initial discussion of very basic chemistry will be foregone herein.

Photosynthesis means the putting together with light or the making or manufacturing with light. It converts light energy into chemical energy and stores it as sugar. It occurs in green plants and requires the green pigment chlorophyll. It is the source of energy for nearly all life, the exception being bacteria and archaea living in extremely hostile environments (chemoautotrophs). This very important but simplified process can be written chemically as: 6CO2 + 6H2O (+ light energy) → C6H12O6 + 6O2. i.e. green plants in the presence of light combine carbon dioxide and water to make sugar and oxygen. In other words green plants make their own food. This most important equation is the ultimate source of all carbon in the atmosphere.

For this process green plants capture approximately100 terawatts of energy in any one year. This is approximately six times the entire human power usage in one year. But where in the plant does this all take place? The answer is in the leaves so we better look more closely at a typical leaf cross-section (see top of column 2).




The green colouration occurs in bodies called chloroplasts which in turn occur in the mesophyll of the leaf, not in the surface of the leaf. These chloroplasts contain bodies (thylakoids) which are stacked like pancakes. It is in the margins of these pancakes that the chlorophyll and other pigments occur. It is here that the energy from the sun is absorbed.




Simplified, photosynthesis can be divided into two stages: Stage 1: or the Light dependant stage is where energy is absorbed from sunlight by the chlorophyll in the thylakoid membranes. Only the red and blue ends of the spectrum is absorbed and stored. Green light is not used and is reflected, hence the plants green appearance.

At this stage oxygen is released. Stage 2: or the Dark Stage does not require sunlight. This is where the stored energy from the Light Stage is used to convert carbon dioxide and water into an organic compound which has three carbon atoms, a C3 molecule.

This reaction occurs in the aqueous fluid in the chloroplast. After six of these cycles glucose is produced. This is the food and energy for the plant. This is also called the Calvin cycle (after Melvin Calvin) and these sorts of plants are referred to as C3 plants and this the C3 pathway. This is a distinctly different pathway to that followed by C4 and CAM plants.

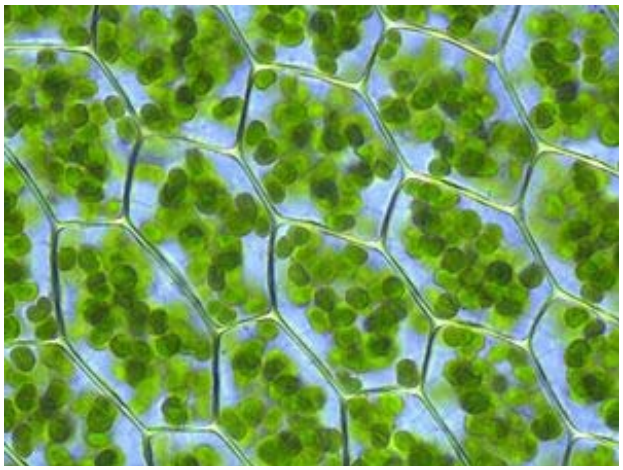
## Other Interesting Snippets of Photosynthesis.

The basic process for photosynthesis was understood early in the 18th century. However some stages of photosynthesis are still not fully understood.

If the carbon dioxide level is too low, oxygen will replace it and carbon will be lost from the cycle, sugars drained, toxins produced, and photosynthesis inhibited. The plant will die.

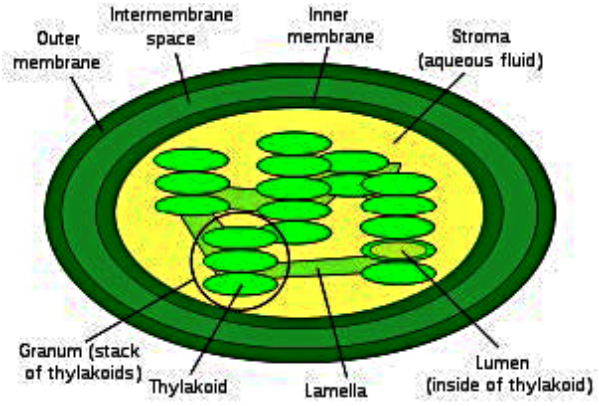
Generally plants sleep at night when their

stoma (pores) are closed. No carbon dixiode in, no oxygen out.



Plant cells with visible chloroplasts (from a moss, *Plagiomnium affine*)

A typical plant mesophyll cell contains between 10-100 chloroplasts. An area of one square mm. of a leaf contains up to 800,000 chloroplasts.




**Simplified structure of a chloroplast**

One hectare of corn (which is actually a C4 plant) will produce enough oxygen in one day in mid summer for 325 people.

This presentation has been gleaned from the following internet pages. For those seeking a more detailed and less simplified explanation/ introduction to photosynthesis, these same references can be used: http://biology.clc.uc.edu/courses/bio104/photosyn.htm ; http://en.wikipedia.org/wiki/Photo- synthesis; http:// ww.emc.maricopa .edu/faculty /farabee/biobk/biobookps.html.

## N E W S and N O T E S

**FINAL NOTICE ON DUES**. If you haven't paid your 2013 dues by the time the next Bromeliana is sent out, you'll be stricken from our membership rolls and mailing list. Single and joint memberships are $25.00; the domestic subscription rate for BRO-MELIANA is still $8.00 and an overseas subscription is $12.00. Pay dues at the next meeting or mail your check without delay payable to N.Y. Bromeliad Society to Barbara Lagow, 54 West 74th Street, #603, N.Y.C. 10023.

**BSI** - We urge every member to join our parent organization, Bromeliad Society (International). This will enable you to receive the excellent BSI Journal, a bi-monthly publication in color with articles of scientific, horticultural and social interest. Annual dues are $50. Applications are available on line at www.bsi.org.

**UPDATE ON DEREK BUTCHER**, everyone's guru on plant identification - The bad news about Derek our good friend from Adelaide, Australia, was that he had suffered a stroke which left him temporarily paralyzed on the right side and speechless (wow). Then we heard from friends who visited Derek in the hospital that "his speech is very clear", "he is quite chirpy & cheeky and is making good progress, walking using a walking stick instead of the walker". Now, happily, we have heard directly from Derek that he is home albeit a bit slower, and back to work with several challenging emails. We wish Derek a full and speedy recovery. The bromeliad world needs his unique expertise.

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email address: hplever@verizon.net