

After 4-6 weeks, make fresh medium using the “Home Style Medium” recipe below. Follow the same instructions as you did for the original medium using these ingredients:

**“Home Style Medium”**

In a quart jar filled with water, mix:  
**1 teaspoon hydroponic fertilizer**  
*(Peter’s NPK 20-20-20)*  
**2 tablespoons sugar**  
**a multivitamin pill**  
**1 ml PPM**

Mix well. The vitamin pill will not completely dissolve. It can be removed after a couple of minutes. Test pH and adjust as you did in the first batch of medium. Measure 3 tablespoons medium into each baby food jar. Add two cotton balls, or 1/2 teaspoon gelatin, or agar (as previously described). Cap with polypropylene caps, or metal baby food jar caps if using a pressure cooker. Sterilize as described earlier.

In the clean box, dip the forceps in 70% alcohol and carefully remove the plant culture from it’s jar and place on the alcohol-wiped plate. Cut into sections or pull apart plantlets using sterile forceps and knife. Place each small piece or plantlet into fresh medium. Recap and seal.



**Step 5: Transfer rooted plantlets to soil**

When plants have developed shoots and roots, they are ready for transfer to sterile soil or soil-less medium (found at your local discount store). Gently remove the plants from the jar. Gloves should be worn when doing this in case your skin is sensitive to the culture medium. Rinse off all of the medium that is sticking to the stem and roots under lukewarm running water. Plant the tissue cultured plantlet in the moist soil. Water with a liquid fertilizer such as Peter’s or Miracle Gro.

Cover the pot with a plastic bag. A high humidity is necessary for the plant until it hardens off and adjusts to the outside world. After 3-4 days, start opening the bag for a while, increasing the time each day until the bag can be removed. Now you can treat your new plant like any other normal plant purchased from a store or grown in your greenhouse.



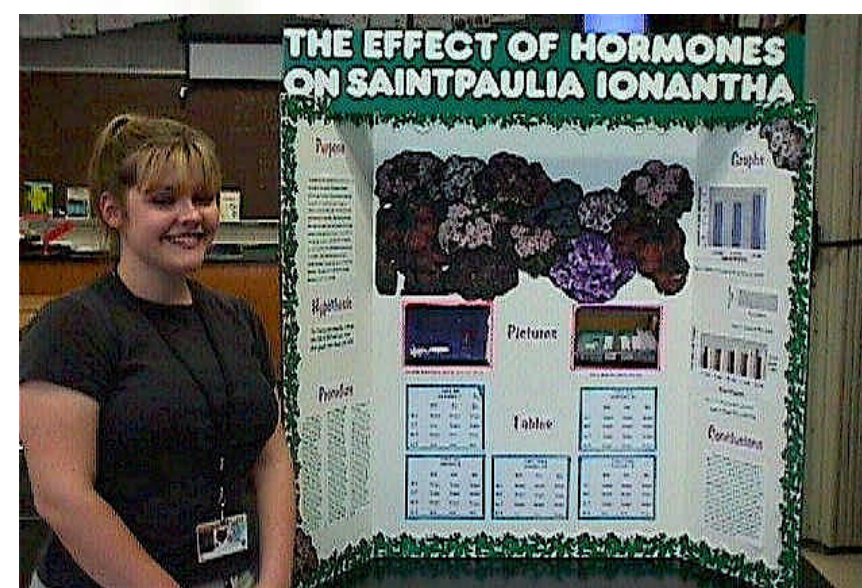
**Classroom Experience**

We have taught plant tissue culture to all ages: children in kindergarten, middle school and high school students, freshmen and sophomores in community colleges, graduate students, and Master Gardener groups. Classes for each age level are taught using teaching techniques that are most appropriate for that group, and each group responds differently to the classroom exercises.

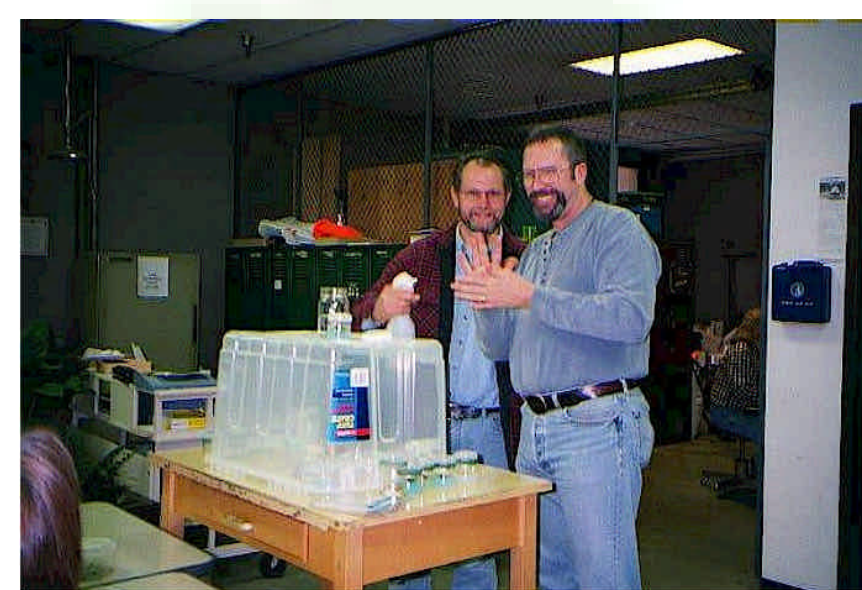
The kindergarteners like to touch everything and put the plantlets in soil. The third graders got a big “kick” out of the gloves and the baby plants. Older students see a utility to the process such as propagating their favorite plant or making money out of it in the future. Almost everyone is fascinated by the baby shoots or the roots that are produced.



We did this with the third graders as part of a “Communities in the New Millenium” project. We talked about food shortages, the need for space, herbal remedies, and how the plants are needed for oxygen production. We cultured geraniums, African violets, and potatoes.



This junior high school student wanted to learn more and turned her class experiment into a science fair project. Students have created “growth chambers” from plastic boxes and from aquariums. A light is suspended overhead and it works great to provide sufficient light and heat.



A plant propagation class at a community college cultured African violet leaves, axillary buds from various plants, and orchid seeds.



High school and college students indicated that plant tissue culture laboratory exercises were an interesting and enjoyable experience. Some students elected to take more plant courses. A few student teachers planned to incorporate plant tissue culture exercises into their curriculum.

**Helpful Resources**

Dirr, Michael A., and Charles W. Heuser, Jr. 1987. The Reference Manual of Woody Plant Propagation: From Seed to Tissue Culture. Varsity Press, Inc. 239 p.

Kyte, Lydiane, and John Kleyn. 1996. Plants from Test Tubes: An Introduction to Micropropagation (Third Edition). Timber Press, Inc. Portland, Oregon. 250 p.

Basic plant tissue culture information, resources, and listservs are located at: <http://www.kitchenculturekit.com>.