

Home Tissue Culture Group Newsletter

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Welcome to our Newsletter



Welcome to the second newsletter published by the Home Tissue Culture Group. I had hoped to publish this quarterly but life is busy and people have been slow to donate articles to the newsletter so you will have to put up with my ramblings.

The Home Tissue Culture group is a subsidiary of Kitchen Culture Education Technologies Inc, a 501©(3) non-profit founded by me and a group of fellow tissue culture enthusiasts. KCET is focused on promoting all plant science education and we are open to working with people applying for grants limited to non-profits as long as it relates to plant science education. The real focus, of course, is the Home Tissue Culture group, which took over sales of kits, advising and teaching of workshops from Kitchen Culture Kits Inc. in 2009. KCK granted use of their products, computers, and lab equipment for an "indefinite" period of time. KCK also financed us until we were able to make purchases on our own. Since KCET/HTCG runs on a cash basis, this early loan of the KCK credit card was invaluable. Membership fees to the HTCG have helped us purchase supplies and sell to hobbyists at very reasonable prices as well as support some classrooms who were financially "challenged", plus free goodies to members as they come available. And, a few months ago, KCET/HTCG was at a point financially to begin paying our executive director a few days a week. Prior to that, all work had been as a volunteer.

WHAT'S BEEN HAPPENING?

Carol:

In the past few months, some extraordinary things have happened to Carol which prevented her from her usual participation in the daily Home Tissue Culture listserv. Thanks so much for Frank, co-vice president of KCET, for doing a fantastic job. This year, Carol (me) lost a brother, found she had a missing brother, did six workshops, visited the kids in Idaho, vacationed in the UK, had lapband surgery in Mexico, found and met her lost brother AND became a grandmother for the second time – Kameron Alexander arrived on November 11. Needless to say participation in HTCG was limited to processing orders weekly and some minor advising. Carol's tissue culture collection has also suffered from neglect but will hopefully get built up again in time for the new 2010 workshop season.

Workshops:

Currently, Carol Stiff is our only instructor. Last year she taught 6 workshops. Once grant money is received, many more workshops will be taught around the country (planet) and those interested in this should contact us. Instructors must be experienced in home tissue culture or have extensive classroom tissue culture, and must attend a KCET/HTCG workshop. You won't get rich but you will meet lots of nice people and get to travel. We also need grant writers as well as sources of grant money.

The 2010 schedule looks like this thus far and is tentative. More information will be on the website and announced on the listserv as it becomes confirmed.



Date	Location
January 2010	Cincinnati, OH ??
February 2010	San Diego, CA
	Phoenix, AZ
February or March 2010	Milton, WI
April 2010	
May 2010	
June 2010	St. Louis, MO (part of the SIVB/IAPB meetings)
July 2010	Middleton, WI (part of WAEE meetings)
August 2010	
September 2010	
October 2010	
November 2010	
December 2010	

Membership Fees

Membership is good for 12 months, and was and still is \$30 through 2009. Membership gets you a free KCK DVD which describes the basics of Home Tissue Culture. Membership also gives you 10% discount on kits, supplies and workshops, free samples, a chance to win the monthly drawing for free supplies, and “other things” as we invent them and time permits.

Membership fees will increase to \$40 in 2010 and new members will still get the free DVD, but we need to think of something new for the renewing members. I had hoped to have a new DVD made by now but that has not happened. I was thinking of downloading Frank’s excellent videos on to a DVD so you could easily watch them and not worry about internet access or speed. Or a pack of hormones with your membership (choose four of these: BAP, kinetin, TDZ, 2iP, NAA, IBA, IAA, 24D)? Please route ideas to us.

Want to try something new?



KCET/HTCG receives from time to time “donations” of items members might want to try. Recently we received a kilo of a generic carrageenan and some TDZ. If you want to try these, send me an email. If you are in the States, we can send them airmail so shipping is cheap. International is another story, and we would rather send those International Priority. That is costly and we will have to have shipping paid for, or save money and include an order of other supplies and get the new trial size freebies at no cost. HTCG also has gellum gum and powdered agar so if you want to compare solidifiers, send me an email. I am also trying to get a good price on the Gelcarin BP812 that Dr. deFossard recommends. I would like to make that available to members who want to try it.

Pre-2009, already have a DVD and don't see a reason to join?

Yes, MANY people have been members of the listserv since its inception in 1998 and see no reason to join now. You already have the DVD and don't want a second one. Other options as listed above might work – email me suggestions please.



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Monthly Freebies:

Each month this year we have been having a quiet random drawing of member names for free gifts. Sometimes I remember to announce them on the listserv and often not. People have received a box of baby food jars with caps, Magenta or Phytotech caps, test tubes with rack, PGR 4+1 Pack, and other "stuff". We have an abundance of baby food jars now so expect many of the next freebies to be baby food jars. My house can only hold so many! Here is the story on our first winner:

Our first winner in the monthly drawing at HTCG is Bruce Bagnoli in California. He will be receiving a free box of baby food jars (35) with caps. I asked Bruce to tell us about himself and here is his story:

"I first became interested in plant tissue culture around 1988 or 1989 when I read about bamboo propagation using tissue culture methods in scientific journals while working at Lawrence Berkeley Laboratory. I'm a member of the American Bamboo Society and interested especially in bamboo propagation. I bought the second edition of Plants from Test Tubes by Kyté in 1988, but didn't try this approach until recently when I attended your workshop in Bakersfield last December 2008.

I'm especially interested in conservation of endangered species. My interest in PTC was also stimulated when I read a paper in the journal Science about how human immune



resistance to Cholera was inserted into a potato using genetic engineering. Since Cholera is a scourge affecting poor folks around the world, the idea that this technology could be used to make a cheap source of food that would also help resist this disease captured my imagination. (I don't know what happened to this line of research, btw).

While I've read scientific papers all this time about Plant Tissue Culture, until

I took your class it was just an academic interest. The orchid seed that we germinated in the workshop has flourished and I'm working with roses and bamboo. Still learning, struggling a bit with the fourth stage, transitioning plants from the media to dirt. I'm enjoying this new way to work with plants, learning a lot and looking forward to improving my sterile technique. It's great fun to be able to do this at home.

Thanks.....Bruce Bagnoli"

KCET Tip



Using plastic test tubes with screw caps: microwave media + agar until agar is melted. Pour media into tubes. The first line on the rack is about 10 ml. Put caps on loosely. Microwave gently (email Carol for more details) or pressure cook.

T-shirts:

In 2009, we did choose a logo for the HTCG that was designed by Matthew Comstock [Thanks so much Matthew!]. We then decided to have a motto contest and about 60 ideas were submitted. Unfortunately, none received more than a maximum of six votes. At that point, I really wanted a shirt for myself so I personally paid to have embroidered logos made at Land's End Business Outfitters. My sister's law firm has their shirts done there and I really love them but everyone thinks I'm a lawyer because I always wore the law firm's shirts. I wanted my own.

I had shirts made for me and a few other people (Frank for one) and they seemed to like them. As of yet, there is no writing on the back but I am also having a back logo designed which simply says: *Home tissue culture: making friends.....a thousand at a time.* I'm not sure who submitted this, but I thought it was simple, would make people ask questions, and would not offend anyone.

If people are interested in these, maybe I can have some made. Land's End offers quality merchandise and maybe this will be a more flexible way for people to choose a shirt of their liking. Someone suggested we sell these at \$30. Email me your recommendations.



Here is Brad modeling one of the HTCG polo shirts with a close-up of the embroidered logo.



"How did I get into hobby tissue culture?"



One of my hobbies is amateur zinnia breeding, and if one of my hybrids-of-hybrids zinnias turns out to be exceptional, I want a way to make lots of "copies" of it, in order to get an extra large number of seeds from it in an effort to "dehybridize" it. Also, it might prove useful to distribute the zinnia clones as such. I have developed techniques for growing zinnias from seed to seed indoors and I have developed a protocol for growing zinnias from cuttings, but that is a rather slow way to increase them asexually. I'll be trying a number of things in order to develop a workable protocol or protocols for the micropropagation of zinnias for the amateur zinnia hobbyist. I recently joined the Home Tissue Culture Group, so I am still in the preliminary learning phase.....
Burton Ogden

For me it was when a tornado ripped a tree out of my yard, that held great sentimental value. I was heartbroken that my late husband's favorite tree was going to die, and I wanted to find a way to save it. A friend pointed me to the home tissue culture site, where I have begun to learn about home tissue culture. Whether the tree will live on is still up for debate...but I am learning some fascinating facts.....Vendla

My story can not be summary in three lines. My first interest in TC was in 1997 when a friend get a PHD in botany and invite me to learn TC in his lab. For work reason I relocate to Ohio and our connection with TC went to sleep until recently the last of my orchid from Puerto Rico was dying that I start surfing the internet and hit one of the Videos of Frank. I was so impress about the fact he was doing it in his kitchen that I start buying stuff to do it in my home too. The interest was so big that all my worries about the economy and other problems goes away and only concentrate in get one explant to grow. So I recommend this to those single parent that have the empty nest like me.....Gregario

I am a newbie. I've yet to hold my class for our homeschool students, in the new year. But I found out about all this in a strange way. I took the behind the scenes tour at EPCOTT at Disney World. We toured the garden at the land and I was mainly interested in the hydroponic gardening and the vertical gardening. I always get their little clone plants in jars when I see them at the park. And I noticed they had a section set up propagating the plants orchids and such. I thought that was such a cool process for starting plant and wanted to know more. So when I asked about doing this they told me that there was no way I could do this at home and it could only be done in special laboratory settings. But when I got home I went to the hydroponic store and there was a magazine that had a article about plant propagation Planttc.com explaining it could be done at home and kits that you could get. I then started google searching and hunting for information resources material and such. I was looking for those V shaped containers I found in the article but to no avail. Then I found your site and noticed you would be holding a class in my area and signed up. It was a great class and so cool. I plan to have a class for our homeschooling community and show them the basic propagation. Basically I don't like being told I can't learn something or do it at home and forged ahead to figure it out.

Thanks for all you do in sharing this fun plant propagation.....Tuesdi

In the News

These appeared in the last issue of the In Vitro Report and are relevant to HTCG:

Plant Tissue Culture Workshop for Home and Classroom in St. Louis:



Carol Stiff, President and Executive Director of Kitchen Culture Education Technologies Inc, has arranged through the generous cooperation of the site organizers for the IAPB/SIVB meeting, an onsite classroom for her plant tissue culture workshop. This will be offered on Saturday June 5 and is free to the first 10 student SIVB members that contact her. The classroom will be within walking distance of the main conference center so transportation will not be a problem. The workshop runs from 9 am – 4 pm and offers basic instruction to teachers and hobbyists and others on a budget on doing plant tissue culture with inexpensive equipment. Carol brings all supplies with her on the plane and we set up our “lab” in the hotel meeting room.

Visit the websites for more information: www.kitchencultureEducation.org , <http://kitchencultureeducation.org/workshopsOneDay.htm> and contact Carol to register for the class at carol@kitchencultureEducation.org Others can register at the website for a fee at <http://www.hometissueculture.org/htcgworkshops.htm>

New website:

The American Council for Medicinally Active Plants Inc. (ACMAP) officially became the American Council for Medicinally Active Plants (ACMAP) is to promote and foster research, education, development, production, and conservation of medicinal, aromatic and other bioactive plants useful to human health.” ACPMAP was “born” back in March, 2007 when a group of interested scientists met in Warner Robins, GA, following the 1st International Symposia on Medicinal and Nutraceutical Plants of the International Society of Horticulture (ISH) to discuss their mutual interests. ACPMAP was proposed by Dr. Anand Yadav (Fort Valley State University, Fort Valley, GA) and Dr. Gary Stutte (Kennedy Space Center, FL) who is the “Point of Contact” as the founding members of ACPMAP develop their by-laws, elect officers and file the infamous Form 1023 for non-profit 501(c)(3) status. Founding members include, in addition to Drs. Yadav and Stutte, Jim Simon (NJ), Lyle Craker (MA), Jeff Adelberg (SC), Rao Mentreddy (AL), Agnes Rimando (MS), Jorge Ferreira (WV), Fabricio Medina-Bolivar (AR), Prahlad Parajuli (MI), and Valtcho Jeliazkov (MS). ACPMAP has a website under construction at www.acmap.org with Carol and Jennica Stiff serving as webmasters. Please visit the website for membership information, updates on ACPMAP’s activities and future meeting plans.



“HTCG reaches around the world”:

<http://botanyschool.ning.com>

Frank sent me this about a project he is assisting with in Thailand:

“I’m helping students in Thailand with plant tissue culture. It’s been so much fun. The teacher, Mook, is great and has the same mindset as you. She travels to different schools to teach plant tissue culture.

Mook and the students are preparing a presentation for Nov. 2nd in front of Her Royal Highness Princess Maha Chakri Sirindhorn, daughter of the King of Thailand, at the Royal Military Academy. The goal is to get state funding for learning about plant tissue culture. They put a poster together with my picture on it and text from the blog on their website. They call me Teacher Frank:-) I feel truly honored. Mook thinks that since there is interest from other people on their website it would increase the chances of them getting state funding.

There are some real characters in Mook’s class. A great bunch of kids who are eager to learn and have fun doing it.

The students had one presentation. Not sure to who. I think it was a runner up for the important one. The date changed to Nov.11th for the presentation to HRH Princess Maha Chakri Sirindhorn at the Royal Military Academy. I attached the poster they made for the presentation. In our emails.”



Here is an excerpt from the poster:

“My name is Frank Tromble. I’m interested in all areas of science. I work with Carol in the United States. Carol teaches plant tissue culture. Plant tissue culture, I learned self-taught. Self-taught need help from others. I have help from many people around the world interested in plant tissue culture. I talk to many scientists working with plant tissue culture. I thank many people who share this knowledge. True Gift I want to students. Plant tissue culture will lead to many opportunities. Children are the future. They have good hearts. To find something new. I hope that I will work with the pearl in the development of interesting for students.”

These plants are no vegetarians

This story appeared in the Vernon Morning Star March 16, 2008 and was written and photographed by Tyler Olsen.

Permission has been granted to reproduce this here.

Rick Keehn shows off a prize set of B-52 Venus Fly Traps at his greenhouse, where he grows carnivorous plants, just north of Lumby. Keehn raises a variety of bug-eating plants, including butterworts and sundews. Just north of Lumby, a narrow dirt lane leads to a two-acre lot occupied by a home, a barn and a small greenhouse, everyday in appearance but harbouring an array of carnivorous plants. Some use bright, welcoming colours to attract unsuspecting victims to leaves coated with a sticky mucus that doesn't let go. Others extend long, skinny leaves skyward, where they intercept their catch, rolling the doomed creature up like a mob victim in a roll of carpet. Still others wait as their pray climbs toward their base, where they fall into a pit and drown in enzymes.



The most famous of the bunch, the Venus Fly Trap, attracts its next meal to an open pad, where three hairs sense the presence of live creatures. Two jaws, lined with fierce-looking teeth clamp shut, sometimes so quickly as to produce an audible snapping sound. As the bug struggles, it keeps retriggering the sensors and the jaws stay firmly shut as digestion begins. This is the home of Keehns Carnivores, where Rick and Bobbi Keehn raise bug-eating plants for customers around the world.

In Ottawa, visitors to the Royal Ontario Museum's new exhibit on Charles Darwin will curiously peer at a selection from the Keehns' greenhouse: pitcher plants, butterworts, Venus Fly Traps and rotundifolia, or sundews, a carnivorous plant Darwin used to show how organisms adapt to their environment. "They grow in bogs where there's very little nutrients for the plants and they've adapted to find a way to get the nutrients," explains Rick.

On Wednesday, the Keehns received Canada Food Inspection Agency certification to make sure a shipment of carnivorous plants destined for Germany were good for shipment and devoid of problem gnats. Ironically, the plants tend to eat those same bugs. In the meantime, Rick was examining traffic on his website, which included the curious note that a web surfer from NASA in Houston had taken a peek.

Life as a carnivorous plant grower – one whose operation obtained farm status last year by quadrupling its sales – is a world removed from Rick's previous vocation as a planer maintenance technician at a Salmon Arm mill, where he worked for 25 years.

"Things didn't seem to be going that well in the forest industry so I thought it might be good to try something else," he says. His new job, he said, "is much more relaxing, even if sometimes it's 20 hours a day." It was a love interest that rejuvenated his interest in killer fauna – which had been sparked years earlier by his now grown children – and eventually drew him to Lumby. "I had to come up with some kind of idea to make a living so I could marry this wonderful woman," said Rick, with wife Bobbi at his side. After having previously worked with the Department of Fisheries and Oceans at the coast, Bobbi had moved to a parcel of land just north of Lumby, which she shared with two horses. Rick followed in June 2006, ditching his job, moving to Lumby, marrying Bobbi, and throwing all his efforts into growing carnivorous plants for a living.

"Vegetarians" continued

While still working at the mill, Rick had learned how to do tissue culture, despite a cloak of secrecy over the process fostered by growers reluctant to give up the secrets to their success. After much searching, Rick had hooked up with Carol Stiff, who sells kits that allow hobbyists to propagate African violets. "Nobody else would talk about it and, now that I've learned it, I've learned it's quite cutthroat." Stiff taught Rick the basics and he was off, working on the delicate and precise process long into the night. "I got the basics, then it was experiment as much as I could," he said.



Rick's developing passion for carnivorous plants did not entirely surprise Bobbi. "Everything's a little left-of-centre with him," she says of Rick, who owned piranhas when the pair met and admits he likes the carnivores because "they eat stuff." But his determination made a profound impact on Bobbi. "I had no idea this guy had this much drive and ambition," she said. "He deserves to do well with this. He lived on hamburger helper and two hours sleep for two years to learn how to do it." And that was just learning tissue culture. Five years ago Rick says he couldn't work a computer. He has since developed the website for Keehns Carnivores. He's also dealt with six different government agencies to export plants, set up a sterile lab, built a greenhouse complete with temperature and humidity sensors and developed extensive knowledge of the different varieties of bug-eating plants. "Four years ago, I didn't know there was more than a Venus Fly Trap," he recalls. The pitcher plants are particularly impressive, with some able to grow three feet tall. Last summer, sitting on the Keehns' deck, their carnivorous appetite was on full display as they became a popular, and deadly, wasp destination. They were buzzing away and buzzing away as they drowned in the tubes," recalls Rick of the plant which also bears a flower he says is one of the most beautiful he's ever seen. Over the summer Rick will feed some of his plants grasshoppers, meal worms, earwigs, centipedes and moths in an effort to grow them as large as possible, although most plants will survive on the peat moss in

which they are planted.

The Keehns have only recently restocked the greenhouse with the plants, which had been stored into a small adjoining room over the winter. But already they are busy taking orders, a good omen as, in past years, customers haven't started calling until late March or April. Indeed, momentum is building for Keehns Carnivores, helped by the fact that the couple's operation is only one of two like it in North America. The lack of competitors has surprised Bobbi, if not Rick who cites the difficulty of establishing such an operation. But with a good infrastructure established, and additions planned, the couple are looking at new markets for their plants.

"This is looking very promising and we've hardly even tapped anything in Canada," said Bobbi.

With a sterile tissue culture lab in her home, a hot house room in her barn and greenhouse in her front yard, getting into the carnivorous plant business has forced Bobbi to shift her grand vision for her property. "It's a little different than what I pictured my little farm, with a couple horses and a little garden...to having 80,000 bug eating plants." But while she is not as instinctively drawn to the carnivores as her husband, Bobbi, who helps with nontechnical duties, is now prodding Rick to teach her the basics of tissue culture. "You can write this down," she tells me with a smile, her husband listening, "I'm still doing the grunt work. "I'm

Follow-up from Rick:

Rick applied to the ICPS to register a new VFT cultivar that he developed from a TC mutation. Below is a link to some photos and an excerpt from the description

<http://www.keehncarnivores.com/sb.htm>

The Scarlet Bristle is distinct in its attributes as the leaf blades and traps exhibit scarlet to burgundy coloration in filtered sunlight and are held prone to the surface of the growing medium in all seasons of growth. The marginal trap cilia are greatly reduced, irregular and devoid of fine hairlike tips which imparts a rough bristly appearance to the trap lobe margins. This is clearly different in structure from the Red Piranha as the triangular shaped marginal cilia are commonly uniform and evenly spaced on the Red Piranha. Another interesting characteristic of the Scarlet Bristle is that mature trap trichomes (trigger hairs) continue to develop a thick bristly growth on their upper portion as the traps age. Although absent in young plants this unique attribute is very apparent in older plants, is readily visible to the naked eye and can resemble anything from a spear-head shape to the bristle end of a bottle brush. This extra growth on the trichomes appears to neither impede nor enhance trap function but does make itself worthy of continued study. Unlike the



Bohemian Garnet the Scarlet Bristle grows equal in size to the regular form of *Dionaea* and does not produce copious numbers of offshoots after the plants have grown out of their TC vigor.

This cultivar was first discovered in the spring of 2006 while performing a replant of typical *Dionaea* tissue cultures. One small clump of plants caught my interest as it exhibited much red coloration to the trap lobes which was a contradiction to the uniform green that was always observed with that particular form of *Dionaea* under lab conditions. Upon closer inspection it was also noted that the marginal cilia on the traps was short and jagged in contrast to the cilia of other plantlets in the culture. As these particular *Dionaea* cultures had been maintained over the course of a few years on a basic 1/2 MS medium with no added PGR's one can only conjecture that the mutation developed through the multiple divisions that took place over that time. With great interest the specimen was isolated and propagated in sterile culture, planted out and hardened under artificial lighting followed by transfer to the greenhouse to be grown out. In the first year out of TC the Scarlet Bristle remained predominantly green under artificial lighting but was quick to turn completely red when exposed to sunlight. During the first few months in the greenhouse the plants also exhibited much TC vigor by continuing to multiply by offsets. Although this was beneficial for obtaining a large number of plants, very few of the plants that were produced that first season achieved a size that was worthy of note and were left to go through dormancy so that developments could be observed in the next season. After 4 months of dormancy the plants were divided and grown separately at which time they displayed a tendency for increasing individual plant size instead of multiplication. It was in this second year out of TC that the more robust plants from year one confirmed the prone growth and enlarged trichome characteristics of the Scarlet Bristle.

Pictures from home labs:



This is the cleanbox setup in the lab of Gregorio J. Placeres [Gregorio_J@msn.com]. I love the curved opening. I tried something similar a few years ago but cut a rectangular opening and that was not easy. I also like the way Gregorio used the cover of the container and the base. Fantastic idea!!.....carol

Thanks for the continued Support

We are extremely grateful for the donations we receive for our workshops: Plant Cell Technology donates the ever precious PPM; Caisson Laboratories donates the renown MS medium as well as agar packets, and Unicorn Manufacturing has donated some new "plastic baby food jars".

Anyone interested in volunteering to be the editor or a co-editor of this Newsletter??? Contact Carol.