

Growing your own phytoplankton is really quite simple. You can save a tremendous amount of money by not having to buy the brand name stuff (DT's). A \$12.00 to \$25.00 bottle can easily be done for just pennies per bottle at home. You can do this with really incredible fancy set-ups or you can do so with just a simple set-up of the spare parts and leftovers you have lying around the house for the most part.

You will need some basic supplies:

- At least 2 or 3 – 2 liter pop bottles (must be clear type not colored)
- An aquarium air pump
- A good measure of air pump tubing (also some rigid tubing would be helpful)
- Some sort of splitter gang-valve for the pump and tubing
- Reverse-Osmosis Distilled Water (ro-di)
- Quality sea salt to make your saltwater
- A starter culture of phytoplankton
- A “phyto-feed” product (details later)
- A highly useful tool to have but not 100% necessary is a 53 micron sieve (details later)
- A fluorescent light fixture: 24” to 48” single or double bulb doesn’t matter for a small setup.
- A light timer

Here are the suppliers for everything:

Pump, tubing, gang valve, sea salts – local pet store or pet dept at Wal-mart, etc.

Pop bottles – if you can’t figure out this one you might not be smart enough for this project ;-). But be sure to follow sanitizing instructions later... I like to use clear plastic containers that you’ll see in my pictures below. They are from Wal-Mart.

RO-DI Water - can be found at most grocery stores and health food stores in the filtered water machines. You can use your aquarium water jugs to transport.

Starter culture – you can use DT's, you can buy one on eBay (look for me shaddshadd), you can purchase them at the site I will mention in the next line

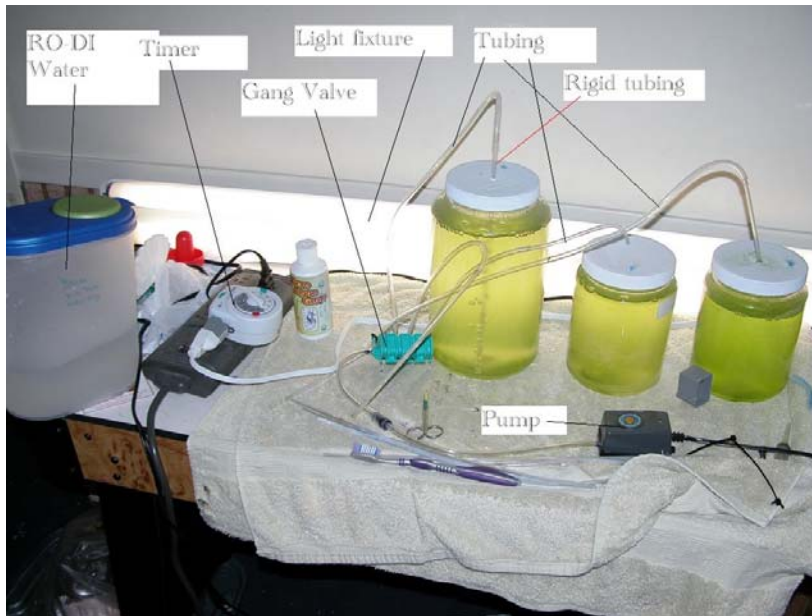
Phyto-feed (micro algae grow), 53micron sieve, starter cultures... Florida aqua farms website at: <https://3kserver7.com/~frank/secure/agora.cgi>

Light timer and Fluorescent light fixture – garage sale, Menards, Wal-mart, etc. I bought a dual 48” strip for \$6 on sale at Menards.

Ok... now on to the good stuff!

Step One – The Basic System.

You will need a table or shelf that you can dedicate to your brewing station. The space will need to hold your light fixture, your bottles, your air pump, tubing, etc. You will need at least 36" long and 18" deep. The light fixture will NOT be hanging over the setup. It will be lying on its side, horizontally behind your bottles. Here are pictures of my old setup:



There's nothing too fancy here, as you can see. I was able to grow enough phyto with this setup to keep my two – 55gal tanks and my friend's 55g tank all happy.

Now that you have a picture that has shown you the basic setup of the equipment... you will now need the secret recipe. ;-)

Step 2 – The Brew!

Really simple stuff here... don't make it too complicated. All you need to do is:

- 1) Sterilize all of your containers. After using your pop bottles, rinse with hot water immediately after finishing the soda. You should also take the extra step of a capful of bleach (chlorine bleach from your laundry) into each bottle, put the cap on the bleach water bottles, bleach will evaporate quickly if left to open air. Leave for a few hours, return, rinse well 3 or 4 times or until the bleach smell is gone.
- 2) Prepare (in a separate sterile container) a gallon or two of saltwater using your RO-DI water and your ocean salt mix to the standard 1.019sg that you should be using in your tank. (But do not use tank water as it has too much bacteria and living organisms in it that will foul your phyto setup)

3) Fill one of your containers with your 1.019sg water about 75 to 80% full. Add the phyto feed product... you can use any phyto feed you wish, after doing a great deal of research on this though, experts all use Guillard's F2 formula. Guillard's f2 is just a recipe of all of the nutrients needed by your phytoplankton to grow and multiply. I use "Micro Algae Grow" from Florida aqua farms. Dose it according to the instructions and whatever size container you are using (about 20 drops for a 2 liter bottle)

4) You will now add your starter culture. If you buy the dry culture disks from Florida aqua farms, follow the instructions in advance to have them prepared before this step. If you are using a liquid culture, such as the one I sell on eBay (shaddshadd)... you will only need to pour some of the liquid into the container(s). You will not need too much, I have learned that you can pour a very tiny amount in the brew and it will not even turn the water the slightest bit green, but within days a rich vibrant green starts to show. Be generous on your first batch and you will have more than enough in the future to not worry too much about it.

5) Close up your containers, or cap your 2 liter bottles. You will need to punch holes in the lids or caps of your bottles a clean nail equal to the size of your tubing does well. You will need one hole for the airline to go in, you should create a second hole to allow the air pressure created by the airline to get out. If you look at my picture, you will see blue fuzzy stuff in the "out" holes on my old setup. I used bits of my bio filter cartridge stuffed into the second hole to keep out contaminants. Run your airlines from the pump, through the gang-valve, and to the **bottom** of each bottle. The air will not only provide O₂, but it will also keep the water moving, keeping your phyto from settling on the bottom and suffocating and dying off. You can do without the rigid tubing, but it is easier if you use it as the last piece going into each container. Without it, the flexible tubing tends to curl up and not go all the way to the bottom of your container. Now, set your light timer to about a 14 to 18 hour cycle. You will want your brew to get some **complete** darkness, so make it so that the lights are off between midnight and 4 am or close to that. Place your light strip behind your bottles to maximize the light exposure along the row of bottles.

6) Step back and give it 4 to 10 days to "brew". Label your bottles with start dates and what is in it. I now have rotifers, phyto, and brine shrimp going at all times. You do not want to mix and match containers or airlines, or anything. You will end up cross-contaminating a batch and end up with a batch of rotifers or brine shrimp in your phyto. It is quite irritating and you will only do it once. I now use a separate station for each. Temperature and the amount of starter culture that you add play a small role in how well your brew does, but it will not stop it from going from barely a trace of green to dark dark green if you just give it time. I use no heaters in my northern Illinois basement and my grows take 10 days in the winter and 6 or 7 in the summer, but they still grow! Check on it every day or two, swirl the bottles to stir up any settling that occurs. There is no wrong time to stop your cultures as long as you have a rich vibrant green color when you want to harvest it.

7) Now that you have your brew done, you will want to run it through a filter before bottling. Use the 53 micron sieve or if you went the budget route, you can use a coffee filter. (The sieve doesn't cost too much more than coffee filters... the coffee filters are kind of a pain in the as\$. Go with the sieve from Florida aqua farms). I use empty 500ml water bottles (sterilized in much the same way as your containers). Pour your phyto through the sieve (the phyto will go right through the sieve, your are just filtering out any chunks and particles) You will want to use a container with a pouring spout to pour into before the small bottles, be sure you sterilize it too. Now, I use a funnel to help fill my 500ml bottles. Dose some to your tank, use some to start your next batch, throw the rest in the fridge for dosing the tank as needed later. Your phyto will keep in your fridge for months if treated right. Keep it capped. You will need to shake it up every day or two as the settling **WILL** occur quicker than in your brewing station. After some start to die off, it will foul the water quickly and cause more and more quick die off rates. If your bottle smells foul, toss it!!! You should always have plenty around to make another batch.

8) Rinse and sterilize your containers, your lids, and your tubing, and start your next batch.

9) Enjoy

Here is a picture of my setup without the flash – you can see the bubbles, different shades of green water, etc.



Email me if your are interested in rotifer cultures or brine shrimp cultures!!!

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