

My Experiences in Growing *Byblis gigantea* from Seed

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A little about myself before I begin...I have been growing carnivorous plants since about 1978. During that time, through my moves across the country, my CP collection has ranged from somewhat impressive to embarrassing (you know, when the collection dwindles to one sundew and a Venus Flytrap you bought at Kmart.)

Anyhow, I was one of the (I suppose) few, who back in the very early 80's, managed to get a *Byblis gigantea* started from seed. One lone plant started via the fire technique out of about 100 seeds. There wasn't a lot of cultural information around at the time and after about a year the plant died. In retrospect, it was probably due to keeping it too wet and in too much humidity.

Now here is why I wrote this article...

In 1993, a friend of mine, Ron Gagliardo, gave me the name of another seed source in Australia — Allen Lowrie. If you've never seen Allen's catalog, order it. It's incredible.

He not only sells seeds for different forms of *Byblis gigantea*, but also for other rare carnivorous plants such as *Drosophyllum*, *D. Regia*, and many tuberous sundews (for which he also sells mature tubers.) Anyhow, back to the story...

I immediately purchased some *Byblis gigantea* seeds.

After receiving the seeds, I began to read up on all methods of starting them. I couldn't believe the discrepancies and vague descriptions on methodologies. One source said do not cover them, another said cover with 4 cm. of soil. One suggested boiling water, one the fire technique. One mentioned leaving the seeds on the soil to become moist before firing them up while another simply said scatter on the surface and ignite paper or hay over them. I was confused and all the more determined.

First, I'd like to say — the fire technique does work! But it seems to be a dice throw. You could burn the seeds too much or not enough. Lose them if you pick out any ashes. And it usually takes over a month before you even know if you have been successful.

The method I use is based on seed treatment with the plant hormone — gibberellic acid. Kindly suggested to me by Allen Lowrie.

Now this technique had apparently been around for some time and I wondered why these plants were not showing up in a lot of collections. I was soon to find out. Even though the gibberellic acid was germinating the *byblis* seeds like crazy (something I had never seen before), they were dying as soon as they sprouted, damping-off.

Nothing new here...but after several tries I discovered something...

No matter how sterile the sand/peat mixture seemed to be (like baking it two days in a row and then soaking it with a fungicide) the little seedlings were still being attacked by damping-off disease! And if I had not been looking at the soil surface with a 5x magnifying glass, I would not have even known I was getting any germination, since the seedlings were turning black almost as soon as they were emerging from the seed coat.

However, just as a matter of experiment, I had pushed a couple of seeds down into a pot of moist milled sphagnum moss — sold by Mosser Lee under the brand name "No Damp Off." As I was about to give up and had by now practically run out of seeds I noticed two green shoots in the moss. *Byblis giganteas*! About a week later I moved the seedlings (even before they had shed their seed coats) into a very open sand/perlite/peat mixture. They are now about a year old, and nearly 18" tall.

I repeated the procedure and had two more plants about a month later!

So after many failed attempts to start *Byblis giganteas* — I believe I have hit on a reasonably reliable method and I offer it to all interested in this wonderful plant!

I will number each step and follow with brief comments and particulars. And yes, it was just dumb luck.

Oh, by the way, I did this in my home under lights and I have never had to wait any longer than 2 weeks for germination!!! And after 3-4 months, I grew them outside all summer alongside the *sarracenias* in my collection. These are tough plants.

Interested? Please read on. I call this a suggested technique since I am sure there are dozens

of other ways to get around the damping-off problem. The following is mine...

(reader's note: This article was delayed a little going to print, so I have added some second year refinements to this technique (marked 2nd year update.)

Suggested Technique for Starting *Byblis gigantea*

(Best time to start is early winter indoors (about 60 F) — afterwards moving plants outdoors after danger of frost is past.)

- 1) Purchase some good quality *Byblis gigantea* seeds!



Figure 1. Brian Cochran's setup for starting *Byblis* seeds and growing seedlings (See article in this issue).



Figure 2. *Byblis gigantea* "perth", seven months old plant from seed and already in flower. Note "annual stem" forming in center.



Figure 3. *Byblis gigantea* "Cataby", ten months old, late summer. Note different.

You don't have to buy massive quantities of *Byblis gigantea* seeds. With this method, one or two packs will do. I have gotten three plants from as few as eight seeds!

2) Prepare a 4" plastic pot using pure milled sphagnum moss. Mosser Lee sells this under the brand name "No Damp-off." The moss should be evenly damp but not soaked. Mist surface with a fungicide as an added precaution. Cover with a well-ventilated clear plastic cup or bag.

I prepare this first so that if any surface fungus appears in a day or two I can hit it again with a fungicide.

When you cover the pot with the clear plastic, cut rather large holes in it at the top. You shouldn't be getting any condensation on the sides!

3) Mix 250mg gibberellic acid/ 200ml distilled water and let stand for 24 hours.

Use only powdered gibberellic acid (GA3) which can be purchased from botanical supply companies.

Do not use premixed gibberellic Acid. I did and got nothing. A friend told me they are all too weak to work or have other ingredients harmful to the seeds.

The ratio of gibbon acid to water came from the formula 1 gram of gibbon acid to 1 litre of water. Since you do not need that much solution you can divide the gibberellic acid into 1/4 grams using a gram scale.

If you notice I use only 200ml of water. It makes the solution slightly stronger and the seeds germinate a little quicker!

Finally, I found by letting it set for 24 hours assures complete dissolving of the gibbon acid into water. You will get more seeds germinating if you do this!

4) Soak *Byblis gigantea* seeds for 24 hrs. in this solution.

This is self explanatory. Don't cheat. Let them soak for a full 24 hours.

5) Plant seeds in pre-prepared milled sphagnum by pushing them slightly down into the moss until only their tops show. Mist surface with chinosol or other appropriate fungicide. Replace the vented cover over top to restrict evaporation and put in bright place (i.e. within 4-6" of two 40watt fluorescent lights.)

I usually mist the surface with the fungicide first so I am not washing off any of the gibbon acid. Pushing the seed only down slightly into the moss still allows you to see them.

You should not be getting any condensation on the plastic cover. If so its probably a little too humid for the seeds.

It is especially important to keep the moss just damp! However, the natural anti-fungal nature of sphagnum will keep damping-off to a minimum. Check daily. If it starts to dry. Water from the bottom, but only enough to make it damp again.

If any fungus or mold appears on the moss surface during the next couple of weeks just mist lightly with a fungicide. I have not found this to be much of a problem though.

(2nd year update: I dripped Truban around the seedlings if any fungus appeared. Just a couple of drops followed by a couple of drops of pure distilled water. It seemed to be far more effective than Chinosol. Be careful though, Truban is extremely poisonous!!!)

6) After about 10-14 days, look for and expect germination daily! Use a 5x or 10x magnifying glass. The germinating plants will at first look like little white specks appearing on the seeds. Daily they will grow visibly longer. Don't disturb them just yet.

Also you may continue to get germination over the next month or so. But start looking after 10 -14 days!

7) Let seed sprouts continue to grow for about 7-14 days.

What you're looking for is the sprouts to start getting some color to them (green or red.) This means they are starting to harden off and becoming more resistant to damping-off. Take note — these are excruciatingly slow germinators. Be prepared to wait almost a month before they begin to produce true leaves. After that they grow extremely fast. Doubling in size nearly every couple weeks!

Anyhow, they don't even have to shed their seed coats or straighten up before proceeding to the next step! None of mine ever did.

(2nd year update: I left some of the seedlings go almost 3 weeks in the moss. More of them survived the transplant to soil.)

8) Prepare a 1/3 sand/ 1/3 perlite/ 1/3 peat mixture that is open and just barely moist. Using a 6" pot mound the mixture a little in the middle. **The important thing is just to have the soil barely moist — if it is wet the seedlings will be attacked by fungus.**

If you err when preparing this mixture let it be on the side of the sand and perlite. The Eneabba form of *Byblis gigantea* grows on pure white silica sand in nature. This is not your typical sand/peat mixture. It's probably best described as an open gritty mixture like *Drosophyllum* enjoy except a little more damp.

9) Remove germinating seeds (again this is after 7-14 days) from moss with the tip of a knife or other similar instrument and place gently in a small indentation on the sand/perlite/peat mixture. Drip a couple of drops of fungicide around it with an eyedropper.

It does not matter if some of the moss is still attached to the seedling. The beauty of the milled sphagnum is that it almost falls away from the seedling. If you can get rid of it do so. Also, be careful. These young seedlings can have roots nearly 1/2" to 1" into the moss by now!!!

After placing the young seedling into the sand mixture what you are trying to do is simply nudge the sand against the emerging seedling. If you push too hard you will bruise it and the seedling is sure to be attacked by fungus!

By dripping the fungicide about 1/4" away from the base of the seedling, it helps to move any sand particles a little closer to it — helping it to settle.

The main thing here is not to have the sand too wet! In fact, mine is just barely moist. And after I plant the seedling in, I water from the bottom until absorption slows down. After a day, the surface will look just moist.

As the seedling begins to form it's customary dew, I even let the surface look dry before I water again.

These seedlings don't need ultra high humidity or soil moisture. In fact, both seem to be their greatest enemy.

(2nd year update: I dripped a couple of drops of Truban (fungicide) around the transplanted seedlings followed again by a couple of drops of distilled water to settle them in. Then I sprinkled some DRY milled sphagnum (same stuff I used to germinate the seedlings) just around the base of the seedling after I transplanted it. (easily done with the tip of a knife.) This dry surface plus the fungicide must have helped because I only lost one seedling and that was because the pot dried out!)
10) Cover with a vented clear plastic lid. The seedling will continue to grow and can be left in this pot for its lifespan.

I use 6" deep dish clear plastic trays. These can be trimmed to make a custom fit terrarium-like lid. But I also cut plenty of holes in it to allow for greater air circulation. Remove the lid after the seedling begins to grow through the top (about 3" tall.)

Enjoy them! These are hardy plants and can stand anywhere from light frost to over 100 F. The trick seems to be to only give them enough water in the tray to be sucked up within a minute or so. Never stand them in water! They should be flowering in about 6 months time. (June in Northern hemisphere)

For adult plants:

FULL SUN!!! KEEP ONLY SLIGHTLY MOIST!!! TOP OF SOIL SHOULD USUALLY LOOK DRY!!!

I am sure there are some growers thinking that all of this is a bit tedious and others that find fire the best method. But this method has worked for me (twice!) One thing I know is that these plants are extremely rare in the United States, yet are not particularly hard to grow if you are careful about watering.

Since the real trick is getting them started, it is here that I will continue to work to improve the success rates.

Finally, a disclaimer, you will most probably lose a number of germinating seeds even with this method. I lost about 50% of mine, but compared to a 0% success rate over the last 16 years it is a definite improvement. Also, a lot of the germinating seeds will simply refuse to root and will expire on the moss. Do not worry. The healthy ones will almost always make it!

So crack open a Fosters if you get a *Byblis gigantea* going. You deserve it.

(2nd year update: I had a 90% success rate moving them to soil. So I had a second Fosters!)

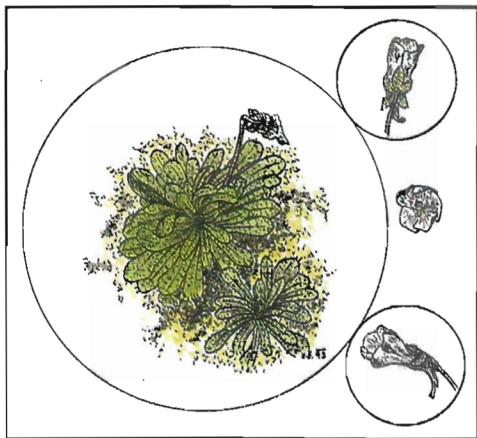


Figure 1. *Pinguicula rotundifolia* in flower, and vegetatively budded secondary plant. Drawings by author.

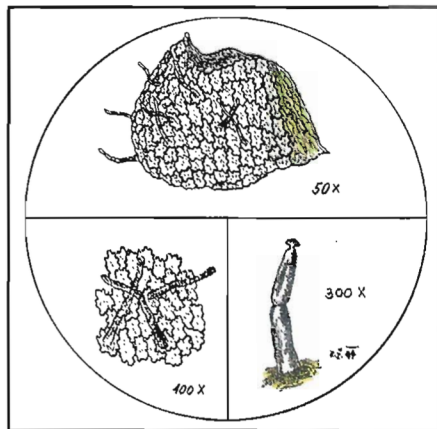


Figure 2. Leaf surface studies of *P. rotundifolia*.

GROWING CP IN THE CZECH REPUBLIC III: *Pinguicula rotundifolia*

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This instalment, I would like to discuss another Mexican pinguicula, *P. rotundifolia*.

I have been growing this plant for about two years in a glass case in my study and I can say it has responded nicely. The species is cultivated in a 1:1 mix of perlite and peat. The pot is placed in a saucer but water is not allowed to stand in the saucer especially in winter. It seems much better to spray the winter leaves during the winter with pure water.

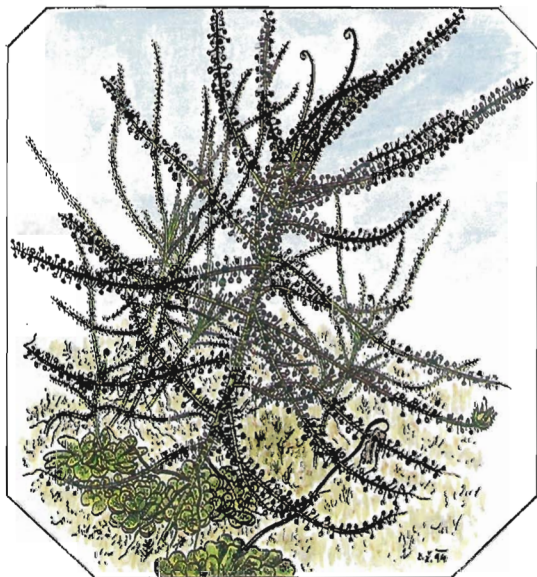


Figure 3. A "stray" *Byblis liniflora* in the pot with *P. rotundifolia*.

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