

# THE FISHMONGER

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### Reminders:

- Our next **meeting** is Wed March 3rd, 7:30, at the Vancouver Aquarium Marine Science Centre in Stanley Park. Enter at door #5 at the north end of the Aquarium Buildings.
- Please mark all your auction items clearly with your membership number. Those not marked cannot be auctioned. Only paid up members will be able to participate in the auction.



Visit us on the web at:  
[www.fishopolis.com/vahc](http://www.fishopolis.com/vahc)

## EDITORIAL

March and April are very busy months for me so the Fishmonger for April and May will be a combined issue. The June Fishmonger will also be a few weeks late and it will come out in mid June. Over the summer I am planning on doing a web based Fishmonger newsletter for July and August, details to follow.

The April / May Fishmonger focuses on plants for a second time. It contains articles on many of the species that always seem to be available at our club auctions.

I don't have a theme in mind for future newsletters so I'm looking for ideas. If you have experiences with anything related to the hobby that you'd like to share, please send me your articles, notes, pictures or anecdotes and I'll make sure you get all the credit.

I look forward to seeing you all at the next meeting.

*Ron Guenther*

## CLUB NOTICES

- Thanks to Jen Reynolds for her talk at the March meeting on Malawi Cichlids.
- The VAHC is keenly interested in growing the aquatic hobby in the Vancouver area, and to that end we recognize the value in maintaining a positive relationship with the suppliers of the hobby. If you are a pet store that is interested in improving your relationship with VAHC, we encourage you to contact us to help us understand how we can best work with you. Spencer Rozell is currently filling the role of Pet Shop Liaison, and is eager to hear from you. He can be reached by email at [srozell@shaw.ca](mailto:srozell@shaw.ca).
- 2004 memberships are now on sale for \$20. Membership renewal / signup forms are on page xx.
- New members are always welcome. Should you know anyone who is a keen hobbyist, or someone just starting in the hobby, bring them along to the auction or the next meeting in March.
- We are now distributing The Fishmonger electronically. Please send an email to [rguenther@bayleaf.com](mailto:rguenther@bayleaf.com) to ensure you get on the distribution list. We are no longer mailing them out but there will be a limited number of copies available at the monthly meetings.
- Getting original articles for this newsletter is tough so please help us out and write a few words on anything fish related. It doesn't have to be long or fancy and I'll even spell check it for you.

## Vesicularia dubayana - Java Moss

By Twyla Lindstrom-Peters

Originally published in "Fins & Friends" Regina Aquarium Society, Canada (reprinted from Aquarticles.com)

Java Moss is a popular, useful and versatile moss which comes from Asia, Malaysia, Java, and India. It can grow on nearly any surface or free floating. It is classified in the Hypnaceae family which consists of 'sleeper mosses' which typically exhibit creeping growth. It has tiny lanceolate light to medium green leaves 2-4 mm long in two rows on either side of a slender stem. In the emersed form, leaves are wider and glossy dark green to olive yellow-green. It can be initially secured to a rock, root, bark, etc. and its rhizoids will adhere and grow by means of a large number of red-brown root like threads. Heavily branched shoots quickly create a thick cushion which can be thinned and/or cut back as wished. It can be grown near the surface and, in nature, is usually found above water growing up tree trunks, around stones or on the ground in moist jungles. For this reason, it is ideal for paladariums.

It propagates by division of side roots. Red-brown sporocarps (blooms) are formed both above and below the water in moderate to low lighting. It is distinguished from *Glossadelphus zollingeri* in that it never forms sporocarps underwater. It is quite accommodating in

that it grows in a PH of 5.8-7.5 and from 18-30 degrees Celsius. It likes soft clear water. Debris from the tank may accumulate among its threads. This should be rinsed out as should any build-up of algae, as both will hinder its survival and growth. Strong light tends to only cause algae to grow on the moss rather than promote growth of the moss. Nourishment is derived entirely from the water in which it is kept.

Java moss is widely used by aquarists as a spawning substrate. The egg scatterers such as rosy barbs will spawn over it and are unable to devour their eggs later as they fall into the moss. Some species of cory cats may spawn in the moss (this makes it very convenient for the keeper to remove the moss and eggs to incubate elsewhere). It is also an excellent media on which to hatch eggs such as Australian rainbows and will facilitate the production of infusoria for such tiny fry. It is also useful as dense cover for an 'estranged' mate following spawning (e.g. dwarf gouramis, bettas, etc.). It is quite coarse and I have not encountered any fish with a taste for it (excluding of course large cichlids!).

###

### FOR SALE / WANTED

- Patrick Tamkee has Angel fishes for sale: silver, gold, and marble. They are in excellent shape with no deformities. All have excellent appetite and have been conditioned to eat flake food, brine shrimp, blood worms, beef heart, fish pellets, white worms, and micro-worms. Sizes range from dime to loonie size. Email Patrick at ptamkee@hotmail.com or call after 6pm at 604 306 2190.
- Steve Pushak has clay fertilizer balls for aquatic plants and various aquatic plants [Crypts, Anubias, Bolbitus...] for sale. If you are interested then contact Steve Pushak at 604-591-5512 afternoons or evenings or email teban@powersonic.bc.ca
- The VAHC is keenly interested in growing the aquatic hobby in the Vancouver area, and to that end we recognize the value in maintaining a positive relationship with the suppliers of the hobby. If you are a pet store that is interested in improving your relationship with VAHC, we encourage you to contact us to help us understand how we can best work with you. Spencer Rozell is currently filling the role of Pet Shop Liaison, and is eager to hear from you. He can be reached by email at srozell@shaw.ca.

## Carpet Plants

By Robert Paul Hudson

Originally published on Robert's web site: [Aquabotanic.com](http://Aquabotanic.com) (reprinted from [Aquatarticles.com](http://Aquatarticles.com))

- Riccia
- Java Moss
- Willow Moss
- Glossostigma
- Microsword

All of these plants can be used to make stunning and intriguing displays with a moss or carpet-like affect!

### Riccia rocks, caves and wood

Riccia Fluitans is a floating plant that can be used to create the illusion of moss-covered rocks and wood. Take a rock or piece of wood and wrap a clump of Riccia around it. Then wrap it with a hair net. Secure the hair net with nylon thread. Cotton thread will decompose. Keep the Riccia trimmed close to the netting to keep it secure and prevent the lower levels from turning brown. All the clippings can be re-used so you have an endless supply! The Riccia clumps may also be intertwined with Java Moss to add a darker color to the mass. Java Moss actually grows into long strands that do eventually adhere to wood or rock on their own accord, however if not secured initially it will float away and adhere to whatever it comes into contact with. Riccia usually remains as very short strands interlocking together, but does not adhere to any surface, and as it grows out clumps will break away and float to the surface.

These moss rocks can be placed in the foreground, middle ground, or on terraces to create unique visual effects. Most any object can be covered in this way. I have used it to cover clay breeder caves to create a more natural looking area for cave spawning fish. Even filter tubes can be covered! Just remember you will need to get at it to trim it about every two weeks. In my opinion Riccia does best in bright light: 3 watts or higher per gallon of water, unless you have very shallow tanks. When considering color contrast, remember that Riccia is a light yellow-green plant.

### Java Moss

Java Moss has many neat uses as a decorating plant. Its dark color can be used to fill in gaps to create dark areas and help give the illusion of depth, and since it only requires low light levels and shade, you don't have to be concerned about light when deciding where to

place it. I would be very careful however in using it around lawn-like grass plants. It will entwine through out the "lawn" looking like hair algae and choking the grass plants. I use it primarily around rocky hills, cliffs and terraces. Unlike Riccia, it is heavy enough to sink to the bottom, but light enough to be carried by current around the tank if not watched carefully.

### Willow Moss

Willow Moss is a bit darker than Riccia, (similar to Java Moss) and makes yet another interesting carpet affect in the foreground or to fill in gaps around rocks and wood. Its very easy to grow, requiring only moderate light or higher, and can be affixed to rocks or wood in the same way as Riccia. It does tend to adhere to rock or wood, but should be secured.

**Glossostigma** is a short-stemmed plant with tiny, dainty leaves that creates an interesting carpet if the stems are planted deep enough to prevent the plant from growing upward and too tall. It will send out runners. Requiring moderate to bright light, it should not be shaded.

### Growing grass plants on logs!

Have a cut square of microsword, (usually available in "sod" like squares from suppliers). Take a nylon filter media bag and fill it with enough gravel or clay litter so that when you lay the bag flat the gravel is an inch or two deep. Wrap this around a piece of wood and secure with nylon thread or string. Cover this medium with microsword squares using cotton thread. The thread eventually dissolves and the micosword will be well rooted into the filter bag. Periodically you can inject fertilizer into the bag without having to remove anything.

Send comments or suggestions to [robert@aquabotanic.com](mailto:robert@aquabotanic.com)

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## Hygrophilia polysperma

By Shara-Lee Schneider

Originally published in "Fins & Friends" Regina Aquarium Society, Canada (reprinted from Aquarticles.com))

Hygrophilia Polysperma is a beautiful aquarium plant that originates in India.

It is a rooted plant which does well when planted in bunches. It should be placed in the back of the tank as it grows very tall, in excess of 20 inches.

I found it very forgiving, tolerating temperatures between 70-80 degrees F, and a wide variety of water conditions.

Through trial and error I found the best temperature to be about 78 degrees F and the lighting should be bright to very bright, (I use a florescent GE cool white deluxe) for approximately 18 hours a day. (When on holidays I left the lights on 24 hours a day and I came home to a jungle).

It will grow in brackish water, but prefers fresh water with a pH between 7.0-7.4. It isn't picky as to hardness. I have had it thrive in softened water and straight tap

water.

The only thing I have found that can damage this plant is when it ends up in a tank infested with snails. I have made it a steadfast rule to disinfect all my new plants before putting them in my tanks, as well as any equipment which may be used in more that one tank.

When it is first placed in a new environment the lower leaves may fall off. Small roots come out of the joints and if it is planted horizontally, leaving only the joints exposed, new plants will grow up out of them quickly covering the back of the tank. It should be clipped back on a regular basis to keep it bushy and full.

Coming from a reformed plastic plant user this is a wonderful plant to start with or for anyone else who wants a fast growing and beautiful plant.

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## COMMITTEE MINUTES

The VAHC Steering Committee meets the week after the club meeting each month. We get together at members homes to talk about club business and see what the host has going on in their aquariums.

The May meeting was held at Bart's home in Coquitlam. Thanks to Bart for hosting the meeting. Here are a few of the topics we discussed:

- 2004 Member's Only Spring Auction, 2004 Fall Monster Auction
- 2004 VAHC Calendar of Events / upcoming speakers
- Coordinating with pet stores

Our next meeting will be on Wednesday June 9th at Rick's place. Check the website for details or ask a member of the steering committee at the next meeting. The meeting usually starts at 7:30 so if you are a club member and are interested in helping out with the club, be sure to come out. Some of the topics on the agenda include:

- Coordinating with pet stores
- Membership
- 2004 VAHC Calendar of Events / upcoming speakers
- Summer Social

## Terrestrial Plants Sold as Aquatics

By Wlad Franco-Valias, CAS

Originally published in The Calquarium Volume 42, Number 6, February 2000 (reprinted from Aquarticles.com)

Every so often, while I'm checking out aquatic plants at the aquarium shops, I run across terrestrial plants being sold as aquatic plants. I have never asked why such plants were being sold as aquatics though I have read somewhere that these plants may last longer than the real aquatic ones. I find this reasoning rather insulting. True, I've seen aquatic plants wither and die in my tanks but there is no way I'm about to submerge a Philodendron or a palm tree (no, I'm not kidding, I've seen it) in the hopes it will last longer than some more delicate aquatic plant.

So what's wrong with submerging terrestrial plants? If you think killing plants and sometimes fish is OK then try it and you will be successful. These plants will hold their shape for a while but inevitably they will drown and rot. As they rot they pollute the aquarium, possibly killing fish in the process. Also, the plant may have been sprayed with pesticides while in a green house. Even pyrethrum-based insecticides, which are fairly harmless to us and pets, are deadly to fish. So, how to spot a terrestrial plant in a tank full of aquatics? Here is where some basic plant knowledge goes a long way. I have a three-step test.

### STEP 1: THE LEAF TEST

Submerged leaves of truly aquatic plants don't have a coating that protects them from dehydration. These leaves are thinner and have a lighter, more delicate look than aerial leaves. They are often translucent and hairless. These leaves absorb nutrients from the water much as the roots of terrestrial plants. Aquatic leaves may also have air pockets to stay afloat. But thick, opaque leaves (usually with rotting edges) usually indicate a terrestrial plant.

### STEP 2: THE RIGIDITY TEST

Fully aquatic plants don't have to support their weight. Their stems are soft in order to bend with currents and may contain air pockets to help the plant float. Try picking up the plant and holding it out of the water. Plants that spend their whole lives submerged won't hold their shape.

Bog plants and marginal plants will hold their shape quite well. That's because they have to deal with fluctuating water levels. Many bog plants (e.g. Amazon

swords, crypts, Java fern) will survive fully submerged though they will do better if allowed to send aerial leaves. Unfortunately these aerial leaves usually dry out in our climate or get burned by the aquarium lights. Keep in mind that aerial leaves usually fail step 1.

Marginal plants (e.g. cattails, rushes, irises) usually die if fully submerged. Their leaves are truly aerial, but the plant just adapted itself to live with its roots submerged.

### STEP 3: THE GRANDMA TEST

Does the plant remind you of a plant your grandmother had? Have you seen something like it in a garden center? If the answer is yes, you can be 95% sure it is a terrestrial plant. At best it would be a marginal plant. Don't put it in your aquarium.

### EXCEPTIONS:

All of the above tests rely on generalities. When one looks closely exceptions always come up. Some plants are truly amphibian and do well in either a warm and very humid environment, or fully submerged. Java moss, Java fern, and Anubias are good examples. Other members of the Java fern family (Polypodiaceae) are terrestrial ferns. Likewise the genus Anubias belongs to the family Araceae along with many familiar houseplants (Philodendron, arum, Anthurium, and Dieffenbachia) as well as aquarium plants (Cryptocoryne and water lettuce).

With time and experience one learns to identify the exceptions. When I friend of mine showed me his new Anubias barteri var. nana four years ago, I told him it would be dead in a couple of weeks because it was a terrestrial plant. After all it even failed the grandma test! Well, he was quite proud of himself when he showed me a large patch of it in his tank two years ago. He even gave me a clipping. That clipping has grown five-fold fully submerged in my large tank and recently bloomed twice.

Another fellow club member has a less fortunate story to tell. He bought a variegated plant at a reputable store. I don't know what it was but it was obvious to me it was a terrestrial plant. He suspected it too. The results were some dead and some blinded angelfish.

*(Continued on page 7)*

## Ferns and Anubias

By Robert Paul Hudson

Originally published on Robert's web site: [Aquabotanic.com](http://Aquabotanic.com) (reprinted from [Aquarticles.com](http://Aquarticles.com))

When a young aquarist, or anyone new to the hobby, begins to investigate how to keep aquatic plants successfully in an aquarium, that person can feel daunted by the science and cost involved. Do not fret! There are simple, hardy plants! I have found ferns and Anubias together create an intriguing display with little effort, special care or major investment.

Water Ferns are perhaps the easiest of any aquatic plants to keep because they require minimum lighting standards, absorb most of their nutrients from the water, and can grow without adding supplemental CO<sub>2</sub>. I have found them to be able to tolerate a wide range of water conditions and temperatures. There is nothing plain about the willowy, delicate leaves, or the dark, rustic shapes of ferns.

Reminiscent of the houseplant philodendron with its sturdy oval or elongated shaped leaves, the Anubias provides the needed contrast of strength when placed with ferns. Before I get into the details of a set-up using these plants, I will give a brief description of each plant.

### Java Fern, Watersprite, and African Fern

Java Fern, *Microsorium*, is perhaps the most well known and most recommended plant for low light level set ups. Because leaf stalks grow from a rhizome root that can be divided, and new plantlets also form from the older leaves, it is an easy plant to reproduce. Sometimes a layered effect is created with new plants growing on top of each other. The "Windelov" hybrid grows more quickly than other Java Ferns.

Java Fern should be attached to wood or rock so that the roots can access nutrients direct from the water, not the "substrate" or gravel. Poor conditions can cause the older leaves to turn black and begin to decay, but even under these conditions, new baby plants will begin to come to life from the decaying leaves.

Watersprite, *Ceratopteris*, is the most prolific water plant, growing very quickly under most any condition. The plant may be rooted directly into the substrate, but will grow as a floating plant, or attached to wood or rock. Cuttings are made from the elbows at the point the stem branches and where roots develop, or from the plant tops. Often mistaken for Water Sprite by re-

tailers because of its similarity, Water Wisteria, a *Hygrophila* specie, is not considered a low light level plant and should be avoided in this set up.

African Fern, *Bolbitis heudelotii* is an exotic looking fern with dark green deeply grooved leaves growing from a rhizome as Java Fern does and requires a bit stronger light. The main root can be divided to create additional plants.

### Anubias

Anubias is a slow growing broad leaved plant with thick leathery green leaves from a rhizome. There are several varieties that vary somewhat in size or shape. Because of its slow growth, it can do well in set-ups that have a limited amount of CO<sub>2</sub> available, but it does need a rich source of chelated iron, macro nutrients, and trace elements. Requiring only a low to moderate light level, it will grow faster with stronger light, if CO<sub>2</sub> and additional fertilizer are also increased. There are various supplements that are made for the aquarium substrate that provide iron, (such as laterite, a tropical clay), or supplements that can be added to the aquarium water. Red clay, or clay enriched subsoil can be used in small amounts, (about a one inch layer in the middle of the substrate). Anubias roots will attach to nearby rocks or wood, but I prefer to plant it into the substrate to draw nutrients. The rhizome should be left uncovered to prevent it from rotting in the substrate. I do like planting small Anubias species, such as *Anubias nana*, directly to wood when creating a layered, terracing effect.

### Here is a typical small tank set up such as what I have done:

- Size: 25 gallons
- Lighting: two 20 watt and one 15 watt Trichomatic fluorescent tubes
- Substrate: Blasting sand and brownish red clay gravel, (Fluorite)
- pH: 7.0
- Water: bottled spring water
- Additives: Black Water Extract and trace element supplement
- Plants: Watersprite, African Fern, Java Fern, Anubias barteri

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The bottom substrate consists of two inches of sand mixed with Fluorite and a one inch layer of Fluorite partially blended with sand on top. Four large Watersprite plants surround a centerpiece of red curio wood that is covered with small Java Ferns and African Bolbitis. In the foreground are two small anubias plants reaching toward the wood pile creating dark shadows under their leaves. The Watersprites create a yellow green backdrop against the dark green Java and African ferns. I have Cherry Barbs and White Cloud Minnows as co-habitants.

Experiment with the placement of the plants and wood, bearing in mind the contrast in color between the Watersprite and the other plants, and because the Watersprite will grow much faster than any of the other plants, it would be more suitable in the background or to the side. Spacing, color and contrast add depth and a three-dimensional look to your display. Adding height and depth to the perspective view is easy by stacking wood piles and attaching the plants to the various levels.

### How much light do I need?

Light intensity is measured in "lumens", however I like to follow a simple guideline that many people have used for a long time: the watts per gallon rule. A low light range is considered 1.5 to 2 watts of standard fluorescent light per gallon of water. For the plants that I have described, I would recommend 2 watts per gallon. A fluorescent with a "Kelvin" rating of 5000 to 6500 is preferable in my opinion. Lights should be run for not less than 10 hours a day and not more than 12 hours a day in order for the plants to go through their proper photosynthesis. Fluorescent strip light fixtures, shop light fixtures, or cabinet shelving fixtures can all be used with the proper Kelvin type of bulbs.

### Substrate

With ferns the substrate material is less important because the plant will take most if not all of its nutrients directly from the water. I have found Anubias to do better with a source of iron in the substrate. There are many sources on the internet and in books and magazines for building a proper fortified substrate for plants. Natural or clay gravel provides a rich earthy brown color that is less stressful to the fish than a light colored gravel or sand. A beautiful aquascape can be created using a combination of various types of wood, such as bogwood, driftwood, and curio wood. Corkbark weighted down has a very unusual look and is an excellent surface for roots to adhere to.

### Water Conditions

I have found these plants to be very tolerant of either hard or soft water and temperatures from very cool to very warm in the summer months. If you are not adding supplemental CO<sub>2</sub>, ideally the water should be soft with a pH of neutral or lower. The ideal temperature is between 72 and 78 degrees F. Soft, neutral water will retain more of the natural CO<sub>2</sub>, but if adding CO<sub>2</sub>, alkaline hard water can hold more added dissolved CO<sub>2</sub>.

I have much larger, and more complicated planted tanks, but this remains one of my most favorite tanks to sit quietly in front of: taking in the simple, but graceful beauty. It is truly relaxing.

Have questions? Email me at [robert@aquabotanic.com](mailto:robert@aquabotanic.com)

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*Continued from page 5...*

Either the plant had pesticide residue on it, or it released its own toxins in the water.

The next time you see a rather unusual "aquatic" plant for sale put it through the three tests. If it fails, not all is lost. You can put it by itself in a quarantine tank and observe it. If it doesn't begin to rot and starts growing you may have one of the exceptions. If it starts to rot, take it out of the water and see what happens. You may get a nice houseplant!

### REFERENCES:

Bailey, Liberty Hyde and Bailey, Ethel Zoe (1976). *Hortus Third*. New York: MacMillan Publishing Company.

Scheurmann, Ines. (1985). *The New Aquarium Handbook*. Woodbury, NY: Barron's Educational Series Inc.

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## Aquatic Flowers

By Wlad Franco-Valias, CAS

Originally published in The Calquarium Volume 40, Number 8, (reprinted from Aquarticles.com)

When I started my first aquarium in Calgary my friends were always amazed that I had real plants in it. That made me feel really good for back in Brazil, where I got started in the hobby, aquarium keeping was very low-tech and aquarium keepers relied on live plants to help filter their water. Everyone had live plants in their tanks, and the stores did not carry plastic ones (or if they did, their price would have been prohibitively expensive given the import restrictions of the time). Something that was second nature to me in the past was now considered to signify a level of expertise.

Many years later I joined the Calgary Aquarium Society and heard of the HAP program and how some club members had their aquatic plants flower, and some had actually propagated their plants from seeds. I realised then that I wasn't such a hot shot after all for keeping Amazon sword plants alive and growing *Aponogeton* plants from bulbs. It was quite humbling from me to hear from the HAP masters on their latest feats with their aquarium plants.

Let me assure you that most of the aquarium plants available today are capable of flowering. It is quite natural for them to do so, and they will do it in an artificial setting when conditions are right. Some flowers are very pretty, others are barely noticeable, but one thing I've noticed with many of them is their short life – sometimes as short as one day or less. If you know your plant is about to flower and you want to enter it for HAP points, make sure you have a spotter on call or be ready to take a picture

So what is the secret? I don't have a formula for making my plants flower, but I've noticed a couple of things. First is light. Without proper lighting the plants don't grow well, much less flower. There is a certain level in which the plants do well and grow. If your light intensity increases past this level your plants should flower and grow vigorously providing they are established and you don't have an algae problem in the tank. Regular light and dark periods are important too. Some people claiming that their plants flower when the light period is increased (up to 14 hours). I find my plants flower in winter, when the aquarium gets a few hours of sunlight on the front pane. I don't change the light period (it stays 12 hours) but the light intensity changes dramatically with the sunlight.

Another factor seems to be plant mass. I once let star grass (*Heteranthera zosterifolia*) grow out of control in a corner of one of my tanks. It formed a tangled mass of plants growing all the way to the surface and actually running along the surface for half their length. Then the growing tip of the plants bent upwards and grew out of the water, producing tougher leaves and two flower buds per tip. This went on for a couple of months (January and February) and there were blooms every day. The plants' mass could simply be an indication of the plants' health (and therefore their ability to flower) although there is some evidence that plants do better when there is a large number of the same species together.

The third factor is nutrition. It takes energy to produce the flowers, and with some plants you can actually control the amount of flowers with fertilizer. Water lilies are an example. They need root fertilizer to flower well.

So if there is a formula to make aquatic plants to flower it must be:

flowers = healthy plants + light of proper intensity and time + nutrients

It is important to note that the majority of aquatic plants produce aerial flowers, so the plant will either grow to the surface or it will send flower stems up to the surface. A deep tank may prevent you from getting flowers because of the water depth. In this case you can try lowering the water level. The other dimensions of the tank are not at all important, just make sure the plant is not cramped.

As I said earlier, most aquarium plants are capable of flowering. As with anything in life some things are easier than others, and some things are impossible. Ferns are not flowering plants so don't expect Java fern (*Microsorium pterops*) or water sprite (*Ceratopteris thalictroides*) to flower. The most they will do is produce spores under their leaves. On the other hand, some plants that one may not immediately think of as flowering plants in fact are. Hornwort (*Ceratophyllum demersum*), *Cabomba*, and duckweed (*Lemna minor*) are three examples.

Here are just some of the plants that have produced

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flowers for various CAS members:

In the pond: water lilies (*Nymphaea* spp.); water poppy (*Hydrocleys nymphoides*); arrowheads (*Sagittaria* spp.); frogbit (*Hydrocharis morsus-ranae*); umbrella palm/papyrus (*Cyperus* spp.).

In the aquarium: *Vallisneria* spp.; temple plant (*Nomaphila stricta*); *Cryptocoryne affinis*; Amazon swords (*Echinodorus* spp.); many of the *Aponogeton* species (including the Madagascar lace plant); hornwort (*Ceratophyllum demersum*); *Anubias barteri*.

If you would like to get an aquatic plant to flower, it is best to start with the easier ones. For a pond, just about all the plants available in the pond section of garden centres will flower. But avoid placing tropicals outdoors because they don't like our local temperature fluctuations. For an aquarium, start with *Aponogeton* or star grass, but just make sure you have bright lights. Good luck.



*Madagascar Lace Plant, Aponogeton henkelianus, flower.*

*Photo by Rajendra Kumar.*



## VAHC 2004 Membership Application

New Membership: \_\_\_\_\_ Existing Membership Number: \_\_\_\_\_

First Name: \_\_\_\_\_ Last Name: \_\_\_\_\_

Postal Address: \_\_\_\_\_

City: \_\_\_\_\_ Province: \_\_\_\_\_ Postal Code: \_\_\_\_\_

Contact Number: \_\_\_\_\_ Email Address: \_\_\_\_\_

Individual Membership (\$20.00)  Family Membership (\$25.00)

Additional Names (Family Membership Only): \_\_\_\_\_

My main areas of interest are:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

As a club member you are expected to assist with the planning, organising and running of club activities. I would like to assist with (Check all that are applicable):-

- |  |  |
|--|--|
| <input type="checkbox"/> Monthly Auctions                    | <input type="checkbox"/> Annual Auctions                             |
| <input type="checkbox"/> Write an article for the Fishmonger | <input type="checkbox"/> Printing and distribution of the Fishmonger |
| <input type="checkbox"/> Chair a monthly meeting             | <input type="checkbox"/> Co-ordinate club membership                 |
| <input type="checkbox"/> Guest Speaker co-ordination         | <input type="checkbox"/> Co-ordinate with fish stores                |
| <input type="checkbox"/> Organizing Summer Social Event      | <input type="checkbox"/> Let me know what I can do to help           |
| <input type="checkbox"/> Other (please specify ) _____       |  |

**YES - I agree to the sharing of my telephone and email address with other club members.**

**NO - Please do not give out any of my personal details.**

**(Please circle your response)**

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

Please submit your payment (Cheques payable to VAHC) to: Jack MacKay, Unit #84, 17097 - 64 Ave, Surrey BC V3S