

A WaterZoo guide to...

Growing aquarium plants

Many fishkeepers find growing aquatic plants quite challenging. The first step to being successful is the realisation that all plants, including aquatic plants require light & carbon dioxide to grow. If either of these is missing, or not available in sufficient quantities plants cannot photosynthesize. Photosynthesis is how plants change basic elements into energy for growth. Some 'experts' advise the use of fertilisers or a heating cable. Without doubt these will help your plants grow, but **only** if there is sufficient light and carbon dioxide for them to photosynthesize. If either light or carbon dioxide is not available in sufficient quantities, plants will not grow regardless of how much other equipment and fertilisers you use. It's easier to achieve conditions that encourage growth than you may think, often all that is needed is a few minor changes. In this guide we shall look at factors important to plant growth.

Lighting

Aquarium plants benefit from a constant day/night rhythm; ideally a timer should control the light(s). This timer should be set to switch on for 10-14 hours every day; this replicates the hours of light received in their natural environment.

You should have at least one high specification light, the Arcadia Freshwater Lamp is a good example of a high output fluorescent lamp. For maximum plant growth reflectors should be fitted to each lamp, these will enhance output as well as direct it downwards. One lamp with a reflector should be adequate to grow hardy plants in aquariums less than 15" (38cm) deep. If you wish to keep a wider range of species, those with Red leaves or have a deeper aquarium, you will require two, three or possibly more to be successful, or equivalent LED's. Over time the spectrum emitted by fluorescent tubes deteriorates and intensity is lost, therefore to maintain maximum light output these should be replaced every twelve months.

Carbon dioxide (CO₂)

It is not always necessary to add carbon dioxide to the aquarium, although it's addition will certainly boost plant growth, where sufficient light is provided. Additional aeration should be avoided in a planted aquarium; this will remove any naturally occurring carbon dioxide. Strong aeration is a very effective way of stopping aquatic plants growing! Overly powerful filtration systems should be turned down, if possible and the output returned several inches below the surface. This prevents too much carbon dioxide being expelled. The addition of CO₂ also has the advantage of lowering the pH, which in turn makes trace elements required for plant growth more readily available. We stock a wide range of systems to introduce CO₂ into an aquarium, starting at around £10.00. One of the easiest being Seachem Flourish Excel, a liquid that can be added to the water on a daily basis.

Plants do not consume CO₂ when the lights are out, therefore where possible CO₂ systems should be switched off along with any lights. Solenoid valves are available for this purpose that are easily fitted to pressurised systems. If CO₂ is left running at night in highly stocked aquariums your fish may suffer from oxygen starvation.

Fertilisers

Aquatic fertilisers will only have real benefit if your plants have plenty of light and CO₂ and already showing signs of growth. Rapidly growing plants will quickly consume any available elements required for growth, if not replenished the leaves soon become pale and Yellow. Dennerle produce an excellent range of aquatic plant fertilisers, these are initially more expensive and a little more complex to use than others, but in our experience are well worth the

extra money. For those requiring a straight forward fertiliser then Dennerle A1 Daily or Esha Growth Booster may be the answer. When using any plant fertiliser it is important to remove any carbon or other adsorptive media, if these are left in the filter they will remove the fertiliser. If your plants have just stopped growing despite ideal conditions then Dennerle Planta Gold 7 revitalises tired plants.

Heater cable

These cannot be installed in an established aquarium, as the low wattage heater cable is positioned below the substrate. They are placed in a zigzag pattern before nutrient rich substrate (e.g. Dennerle Deponit) and silver sand is added, this is topped of with several inches of 1-2mm lime free gravel. When the heater cable is switched on it creates a gentle flow of nutrient rich water and gently warms the roots. If you are contemplating a well-planted aquarium a heating cable may be worth considering.

Substrate

Plants absorb much of there nourishment directly from the water; therefore a nutrient rich substrate is not a necessity. But its use will have a positive effect upon aquarium plants, especially when used in conjunction with a heater cable. But like the heater cable a decision to use a nutrient rich substrate must be taken before the aquarium is filled with water. Gravel used in a planted aquarium should be below 4mm in diameter, ideally 1-2mm, this enables the plants to root easily. If possible this should be lime free, as this will not alter the water chemistry.

Water

Unfortunately, the water in the Peterborough area is hard, alkaline and contains high levels of phosphate, this slows plant growth and promotes algae. These conditions are the exact opposite of the natural environment many tropical aquatic plants have evolved in. Hard water oxidizes trace elements required for vigorous growth, where as phosphate interferes with the metabolism of vital iron. For those serious about growing plants then we suggest the use of R.O. water, this is virtually pure with phosphate and hardness causing agents removed, and is available in store. This may need a powdered remineraliser adding to replace vital trace elements. The ideal water conditions for aquarium plants are pH 6.4-7.0, KH 2-4, GH 4-7, phosphate below 0.14 ppm, Nitrate below 50 ppm. These conditions are also suitable for many species of Tetra, Barb, Catfish, and any soft water species.

Easy species to grow

Just like garden plants some aquatic plants are easy to grow requiring no special conditions, while others need specific requirements. Below is a list of plants that should do well in a wide variety of situations.

Microsorium pteropus (Java Fern)

Anubias sp.

Hygrophila stricta & *Hygrophila polysperma*

Limnophila sessiflora (Ambulia)

Egeria densa

Cryptocoryne sp.

For more detailed information on planted aquariums the System for a fascinating aquarium published by Dennerle is highly recommended. This features a plant encyclopaedia detailing the requirements of over 240 species as well as aquascaping suggestions and further advice on keeping planted aquariums.

The WaterZoo 439 Lincoln Road, Millfield, Peterborough PE1 2PE Tel. (01733) 312142

www.waterzoo.co.uk