

## ALL ABOUT ALGAE - Part 1

by Mike Owen

Everyone has algae in their tanks, whether they like it or not. Mostly one should like it; a moderate amount of algae, if it's green, can improve the appearance of rocks, help to remove nitrates from the system, and provide some additional food for the fish in the tank. A lot of algae however can cause problems: it can result in your plants being starved of light because of algae on the leaves, or the front glass may need frequent cleaning to see your fish, and the tank can rapidly become an unsightly mess.

I have recently had algal problems of my own, and in a search for a solution, delved into the subject in some detail. This and the future article are the result of that investigation. The first article will look at the different types of algae found in tanks, and discuss in general terms the methods of getting rid of them, if that is your aim. The subsequent article will go into the eradication of algae in the aquarium in much greater detail. The information is based on both information gleaned from the aquarium literature, and my own experience of algal problems.

### TYPES OF ALGAE

There are four major groups of algae of interest to freshwater aquarists and six other groups of little interest to us. The interesting groups are commonly called by their typical colour, the brown, red, green and blue-green algae. Unfortunately this nice, simple, easy-to-follow scheme is complicated by the fact that each group is not necessarily the colour it is supposed to be; life was not meant to be easy! Nevertheless, identification for our purposes is often fairly simple, and is important since the treatment method can vary according to the type present. In addition each group can be divided into benthic forms, which attach to surfaces in the aquarium, and planktonic forms, which float in suspension in the water. Other broad groupings based on mode of growth exist, but are not too relevant to this discussion.

**Brown algae** only occur as a benthic form within aquariums. The brown algae, known as diatoms, form a coating on the inside of the glass or on rocks. As the name suggests, the growth is typically, in fact always in our case, brown in colour, and hence is easy to identify. Relatively harmless, though somewhat unsightly, it commonly occurs because of a lack of adequate lighting, and hence can be simply eradicated by increasing the amount of light the tank is receiving. Low oxygen content of the water can also be a cause, as can high nitrate or phosphate, but it is likely that your fish would be letting you know well before brown algae appeared that problems existed. Since its removal is so simple, we will not be considering brown algae further.

**Red algae** are a major problem in many Canberra tanks, in a form which is in fact almost black in colour. Hence the name 'black algae' used for it locally, though elsewhere it may be

referred to as brush or beard algae. It typically forms a thick thread- or brush-like growth, up to 1 cm long on both plants and rocks. It will grow so dense on plants eventually to kill them by shutting out light, and can quickly make a tank look pretty awful. The genus to blame is possibly *Audouinella*, though identification is difficult except for the specialist. The environmental conditions which lead to its development are uncertain, but acidic water conditions may be a factor. Removal of red algae from a tank is difficult; the growth appears unpalatable to most fish, and is resistant to most chemical treatments. In most cases, as will be discussed in the next article, all that can usually be done is to keep it in check, without getting rid of it completely.

**Blue-green algae** are another very undesirable growth in the aquarium. This typically forms a dark bluish green, slimy, skin-like coating on plants and glass, which, when disturbed, comes off as a sheet which will easily break into small pieces to spread even further around the aquarium. Several genera may be involved, the exact identification of which is unimportant. These algae can be particularly prevalent where light intensities are high in combination with high nutrient levels in the water. Cure revolves mainly around improving water conditions and cutting down light, coupled with trying to remove it by hand. There appear to be very few fish that eat blue-green algae.

**Green algae** are the most common in the aquarium, and are the only type which can be a welcome addition to your tank. As the name suggests, they are typically green in colour, often quite a bright light green, and most often occur in a benthic form as a light coating on rocks, gravel, the glass sides of tanks, and on plant leaves. Provided that this benthic growth does not become sufficiently heavy to blanket plants so as to cut out light, it should be a welcome addition to the tank. It can improve the appearance of rocks and gravel, giving a tank a well established look, and will assist in removing nitrate waste from the water, with the only nuisance being a periodic need to clean the glass sides of the tank. It also provides a supplementary food source for many species of fish. The planktonic form is more of a nuisance. It causes the well known "green water" effect, when the water in a tank appears to be coloured green by the suspended algae cells.

Another form of green algae is filamentous green algae, which look like long thin threads of green cotton growing in a tangled ball or mat over plants and gravel. Filamentous green algae can become sufficiently tangled for fish to become caught up if they attempt to swim into it after food. It was the form which threatened to take over my 5' main community tank, and several of my Guppy males had painful experiences when they lost their gonopodiums after becoming entangled in the algae.

All forms of green algae can flourish when lighting is bright and also if nitrate and phosphate levels are undesirably high. Management is therefore a case of good housekeeping in the tank, with several species of fish also being helpful with green algae, and for the most part chemical treatment can be avoided.

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