

Dealing With Java Fern Melt

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By Scott Hieber

My small desktop aquarium at my office has Amazon swords (*Echinodorus bleheri*) and windelov Java fern (*Microsorium pteropus 'Windelov'*). This aquarium has slightly less than 1 watt per gallon of lighting and no added CO₂. It is a slow-growth tank, even though Amazons can be very fast-growing plants if given enough CO₂, light and nutrients. This 6-gallon acrylic tank usually requires very low maintenance. I feed the few fish and add trace mix three times per week. Things seemed OK for about two years, but suddenly Java fern melt began to appear. Java fern melt is a rather suddenly appearing and protracted condition of deterioration of the leaves: The leaves develop spots and become mushy in places, then whole leaves rot. Yet one can remove the leaves, and the rhizome remains viable. The Amazons, however, continued to look fine.

I have had Java fern melt before, and each time, I was able to clear it up with one of two methods. In the more common case, I had inadvertently allowed the nutrient levels to get too low. Although Java fern is a slow-growing plant, it still needs a modicum of nutrients. Boosting the nutrients brings the Java fern back to life. But this raises the question of why the swords, which are typically fast-growing and nutrient-ravenous plants, would continue to appear healthy while the Java fern, which is a slow-growing plant, deteriorates. Other plant experts and I have seen this condition, and correcting for low nutrients revives the Java fern. It seems that the swords, being rooted plants, can obtain nutrients from the substrate if the substrate is mature and rich, even if there are few nutrients in the water column. The Java fern, being a plant that attaches to wood and rocks with a rhizome, cannot benefit from nutrients in the substrate. So, when the nutrients become too few in the water, the slower-growing plant shows deficiencies, because it is not rooted.

Another condition that will cause Java fern to melt is a proliferation of blue-green algae (BGA), which are bluish-green "algae" that grow like film (actually they are cyanobacteria, bacteria that photosynthesize like algae). It is easily lifted from the surface on which it grows, feels somewhat slimy and smells unpleasant. It tends to grow in aquaria with plant nutrient deficiencies.

If BGA gets a good foothold in an aquarium, it can begin to cover the Java fern leaves, preventing the Java fern from obtaining nutrients. BGA is easily eradicated by a three-day blackout. Turn off the lights, and cover the tank with a blanket for 72 hours - and add erythromycin. This is available as an antibiotic for tropical fish, and used at half dose, usually knocks out BGA in about three days. Once you get rid of the BGA and fix the original nutrient deficiency that spurred its growth, the Java Fern can again flourish and the BGA will be kept at bay.