

COPPER IN THE GARDEN POND – CURSE OR BLESSING?

Copper is a trace element and as such is an important nutrition component for many life forms. Among other things it is required for production of vital enzymes. But as the term »trace element« indicates, copper is only healthy in minute amounts. In higher concentrations it has a harmful effect on many forms of pond life.

The healthy concentration of copper is quickly exceeded through external influences such as copper pipes or fertiliser. Particularly with soft water a concentration as low as 0.03 mg/l can harm sensitive life forms. If the only water available is water that contains copper then use of the Phosless filter media tubes is recommended. Phosless filter media tubes not only bind the algae nutrient phosphate, they also bind toxic heavy metals such as copper. Through regular replacement of the filter granulate, these contaminants can then be withdrawn from the water cycle permanently.

Copper is often referred to as particularly malicious; as an element that is no longer fissionable, it cannot be decomposed, rather it becomes enriched in the sediment over the long term. Through low pH values and low water hardness copper that is bound in the sediment can be abruptly released and, in the worst case, can cause sudden fish death. Use of pond care agents that contain copper is highly controversial due to the characteristics cited above. In addition with algacides that contain copper, the specified dosing must necessarily exceed the critical concentration for undesired algae in order to achieve the desired effect.

The following values describe the toxicity of copper on water organisms, and are taken from the Handbook of Aquarium Water (Handbuch Aquarienwasser) by Hanns-J. Krause (6th edition; 2007):

[...]damage is to be expected from

0.03 mg/l to algae, particularly blue-green algae and bacteria (filter bacteria!)

0.08 mg/l to higher water plants

0.10 mg/l to fish

This makes it clear that the critical limit for algae is in the same concentration range that is critical for beneficial microorganisms. According to Krause even fish are endangered after just a few applications due to the unforeseeable release of copper due to fluctuations in the pH value and water hardness value. If treatment with algacides that contain copper is executed, there is also a risk of harming sensitive filter biology. In this case decomposition of pollutants is no longer ensured and fish can be subject to subsequent ammonium or nitrite poisoning.

OASE feels an obligation to nature and due to the controversial side effects foregoes the use of copper additives in all of its water care products. Naturally the product range does not include any devices that give off copper ions to the pond water.



ON THIS TOPIC

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