Using Hydrogen Peroxide in Hydroponic Crops

As we all know, hydroponic growers face the challenge of maintaining pure and innocuous solutions that should be free of any type of bacteria, algae or any other microorganism. The growth of any of these organisms inside the nutrient solution carries with it the imminent possibility of plant disease as well as an increased risk of malnutrition and of course, nutrient deficiencies.

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Algae, in particular, are one of the most troublesome organisms as they are found everywhere and they grow ecstatically inside a hydroponic nutrient solution (after all, they are photosynthetic organisms !). These little creatures love to colonize plant roots (depriving them of food) and also consume a large proportion of the nutrients present inside a hydroponic solution.

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So what should a concerned grower do about the incredible problem of algae growth ? Nature has given us part of the answer in the form of a powerful oxidant called hydrogen peroxide. This molecule, whose formula is basically H_2O_2 decomposes forming molecular oxygen and water. It also reacts with organic matter in a redox reaction to oxidize it. In other words, algae and hydrogen peroxide cannot coexist.

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However, there is an important problem that arises when using hydrogen peroxide. It does not discriminate between roots and algae so using more than the optimum amount leads to plant root death caused by the same quality that kills algae. So what is this optimum amount ?

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I would love to show you a peer reviewed article that studied this issue but, as a matter of fact, no one has actually studied the levels at which these conditions are right at a scientific level. Most of what we know is currently empirical. Nonetheless, I have – from personal experience- verified that the application of 1mL of hydrogen peroxide (3% v/v) per liter

of nutrient solution every week does seem to prevent algae and does not damage plant roots.