Disinfecting your Hydroponic Solution with Hypochlorite

As I talked about in a previous post, the disinfection problem in hydroponics is very important as many pathogenic microorganisms as well as algae develop through the course of any hydroponic gardening attempt. Hydrogen peroxide, as I said earlier, is a very good disinfectant with incredible properties but most of the time it is not used because of it's high cost.
Amongst one of the most common disinfectants available we find sodium hypochlorite. This chemical substance with formula NaClO is a good disinfectant because it oxidizes organic matter producing Cl_2 which then further oxidizes organic matter tu produce Cl(-). As you can see, the several steps available for oxidation as well as this compound's innate reactivity make it one of the best and cheapest disinfectants available today. This is the reason why sodium hypochlorite solutions have been used for a long time and now have commercial names, such as Clorox.
In hydroponics, sodium hypochlorite solutions are commonly used to sterilize a hydroponic system prior to use or in between different crops. However, this does not achieve the purpose of maintaining the nutrient solution sterile throughout the whole gardening cycle.

In order to achieve this in a very simple way (for the home hyroponic and commercial gardeners) several peer reviewed papers have studied the effect of hypochlorite ions on different plants and at different levels of concentration. In general, it has been found that concentrations of hypochlorite of 5.5 ppm offer good protection agains microorganisms without affecting the crop qualities.

If you do not have any industrial grade hypochlorite you can still achieve this concentration by applying 0.1mL of Clorox (check that it is less than 6% hypochlorite, usually 5.25%) per liter of nutrient solution. This can be easily measured

and applied for small systems with the aid of a 1mL syringe as the ones diabetes patiens use for insulin (these syringes can be easily purchased at any pharmacy). Remember to try this with a small batch of plants before applying it over your whole garden to ensure compatibility with your particular nutrient solution.
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