

Checking the pH of your Hydroponic System, The Easy Way !

Growers often think that they need to buy pH meters in order to accurately control the pH level of their hydroponic nutrient solution. Actually, there are a couple of ways in which pH can be readily monitored without any digital equipment. One of the cheapest ways in which this can be done is through the use of an acid base indicator.

An acid base indicator is a substance whose protonated and deprotonated molecular forms have different electronic structures with different spectroscopic properties. Therefore, an acid base indicator changes it's color according to the pH value of the solution and this color change can tell us if the pH of our nutrient solution is right or wrong.

Every indicator has it's own characteristic proton affinity which means that it changes at a different pH value. Since the optimal pH in hydroponic growing for most species is between 5.5 and 6.5, we will use an indicator that changes around this value and can tell us if the nutrient solution differs from the ideal setup.

The indicator which best suites our needs is Chlorophenol Red. This substance changes color from yellow (pH 4.8) to red (6.4) (wikipedia is wrong about it changing to violet !), at the pH of our interest, which is 5.5-6.0, the indicator is orange. You can buy an already prepared solution of the indicator ready for testing [here](#). A 100mL solution will allow you to perform thousands of tests at 1/10th of the cost of a regular pH meter.

In order to test the pH, add about two tablespoons of the nutrient solution inside a transparent glass, then add two or three drops of the indicator, mix and watch the results. If the indicator is either red or yellow, you are off the desired

value. If the solution turns orange, your nutrient solution's pH is just about right ! (Below, the color change of the indicator as a function of pH, notice that the orange region is precisely around 5.5-6.0 .

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