

# Selenium in Hydroponic Growing of Lettuce

Hydroponic culture has a very good fame of giving optimal conditions for plant growth and nutrition. It is known that hydroponic crops grown with the best possible conditions can attain results far superior than those obtained with any form of soil gardening. However, the research community has just recently become aware that hydroponic growing may not only be used to provide the best conditions for growth but to enhance the plant's nutritional values in ways that were not possible before.

So how do we enhance plants beyond what can be done with traditional hydroponics ? One way is to add certain non essential nutrients to the solution that can make the plants become more nutrient rich. This for example, can be done with the addition of selenium to certain plant cultures, specially lettuce.

Selenium (Se) is a chemical element which is essential to human life. Selenate, the chemical form in which Selenium is absorbed, is a powerful anti oxidant whose daily recommended value is rarely attained with traditional diets. By adding Selenate to the nutrient solution of hydroponic lettuce crops the plant's Selenium content can be enhanced to supply the required daily values of Se.

Recent peer reviewed studies have shown that concentrations from 2 to 6 ppm of Selenate can increase the Selenium content of both lettuce and tomatoes as well as provide an important increase of other antioxidants in tomato crops. This is a clear example of how the inclusion of additional chemicals in the nutrient solution can enhance the nutritional quality of plants and make them go beyond what they would achieve under "optimum" natural conditions.(Below, the chemical structure of the Selenate anion)

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