

ABSTRACT

Today's polarized discussions regarding cultivation focus on methods that can supply the population with a more sustainable vegetable production than the conventional, mainly through a lower water consumption. Hydroponics is one of the most preferred cultivation methods since it excludes soil, requiring only nutrient-rich water. The purpose of this study was to investigate the growth of lettuce in a Deep Water Culture system when using different nutrient solutions. A literature study was conducted to determine which of these nutrient solutions have the least destructive effects on nature. Deep Water Culture, abbreviated DWC, is a hydroponic method of plant production in which the roots are submerged in a solution of nutrient-rich, oxygenated water. Seeds were placed into soaked rockwools which were laid out on a sprout box filled with water. After germination, the lettuce sprouts were distributed in three DWC-systems with different nutrient solutions - organic, inorganic and a combination of both. Results showed that the lettuce growing in the inorganic solution had the most optimal growth whilst the lettuce in the organic solution had stunted growth. The study concluded that the combination of both nutrient solutions would be a better alternative for both growth and nature, if hydroponic cultivation is to replace the conventional.

Keywords: Hydroponic system, hydroponics, organic fertilizer, inorganic fertilizer, nature, growth.