Udompong Thungprayoung 2009: Development of Soilless - Grown Lettuce in Aeroponics.
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Three experiments were conducted to study the development of growing lettuce in aeroponics culture. Three of 1×2×0.8 m^3 aeroponic tables were built from metal bars lining all walls and bottom side with 160 μ black and white plastic sheet. The top side was covered with the styrofoam sheets that were perforated 40 holes of 2.5×2.5 cm dimension for inserting lettuce seedlings. In the experiment I, the air temperature change was monitored inside the dark chambers of there aeroponic tables that were subjected to different growing condition regimes; no planting with no nutrient spray, no plantling with nutrient spraying and planting with nutrient spraying. Growth of lettuce seedlings transferred from a NFT table at different seedling stages to an aeroponic table were compared to those was continuously grown in NFT. It was found that the air temperature inside the two aeroponic tables with nutrient spraying were lowest and not different to each other followed by that of ambient air and the air inside the table with no plantling and no nutrient spraying, respectively. Growth of lettuce seedling transferred from a NFT table to an aeroponic tables at 2^{nd} and 3^{rd} weeks old after germinating were significantly lower than those grown continuously in a NFT table. However, non significant difference in growth was found when older seedling of 4 and 5 weeks old were transferred. In experiment II, seedling growth and temperature change inside the aeroponics tables with three nutrient spraying intervals; continuous, 1 min on with 6 min off, and 1 min on with 10 min off were studied. It was found that the air temperature inside all chamber were not different to each others and lower than ambient air temperature outside. Growth of lettuce seedlings grown in the two aeroponic tables with interval nutrient spraying were significantly lower than that of grown in the table with continuous spraying only when two-week old seedling was transferred. In the experiment III, seedling growth and temperature change inside the aeroponic tables with no ventilation, with ventilation and continuous spray, and with ventilation and 1 min on and 6 min off spray interval were studied. It was found that air temperature inside the two ventilated tables were lower than the air inside non-ventilated table and ambient air for 3.5 and 4.0°C, respectively. The growth of lettuce at 2,3 and 4 weeks after transplanting into two ventilated tables were significant greater than those grown in the non – ventilated table.

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