

EFFECTS OF LED LIGHT SPECTRUMS ON GROWTH AND YIELD OF HYDROPONIC LETTUCE

Phan Ngoc Nhi, Nguyen Thi Kieu Khuyen,
Tran Thanh Hau , Vo Thi Bich Thuy, Tran Thi Ba

Summary

The experiment was conducted in full dark room (25°C, 65% RH, 500 pmm CO₂) to study the effects of LED light spectrums on the growth and yield of hydroponic lettuce. The experiment was carried out in complete randomized design (CRD) with 8 treatments and 8 replications. The 8 treatments were used including 7 different LED light spectrums: (1) red LED (660 nm), (2) blue LED (450 nm), (3) white LED, (4) 50% red: 50% blue LED, (5) 60% red: 40% blue LED, (6) 70% red: 30% blue LED, (7) 80% red: 20% blue LED and (8) control treatment (sunlight). After 35 days, the red LED and 80% red: 20% blue LED treatments showed the highest fresh weight (30.97 and 30.45 g/plant), total yield (2.51 and 2.47 kg/m²) and marketable yield (2.18 và 2.08 kg/m²), the leaf number, leaf length, leaf width and plant height were also higher than other treatments. However, red LED treatment showed the result of brix (1.83%), Dry matter (3.25%) and chlorophyll (9.56 µg/mg) were lowest. The plant growth, Fresh weight, Yield and marketable yield were lowest at white LED treatment.

Keywords: *Growth, hydroponic, LED lamps, lettuce, light spectrum, yield.*