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Performance assessment of bell pepper (*Capsicum annum*) in newly formulated hydroponics nutrient solution by two different production systems

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Hydroponics is a technology for growing plants in a nutrient solution. This study was conducted to assess the performance of bell pepper plant (*Capsicum annum*) in a newly formulated hydroponics solution compared to Albert's solution by two different production systems (coir dust medium and direct dipped method) in a protected house.

The temperature during the experiment period fluctuated between 29 °C – 34 °C and it was above the optimum requirement (26 – 30 °C) of the plant. The light intensity inside the protected house (which varied within the range of 9 000 – 65 000 Lux) was enough for bell pepper and relative humidity was between 64 % and 92 %.

The plant height, number of leaves, number of flowers and fruits, average dry weight of shoots and roots of bell pepper plants were comparatively high in coir dust medium supplied with Albert's solution. The yields when plants were grown in coir dust medium with Albert's solution, coir dust medium with New solution, direct dipped plants in Albert's solution and direct dipped plants in New solution were 275 g, 145.8 g, 108.35 g and 66.7 g, respectively.

When plant roots were directly dipped, the yield decrease was 58.4 % compared to that of coir dust medium. When plants were grown in the New solution, the yield reduction was 44.5 % compared to that of Albert's solution.

Results revealed that the total sugar and dry matter content of the fruit did not differ significantly in all the treatments. When plants were grown in coir dust medium using the New solution, vitamin C has increased by 25.42 % and Calcium has increased by 148.94 % compared to those of Albert's treated direct dipped plants.

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