

# EFFECT OF EFFECTIVE MICROORGANISMS AND VERMIWASH ON YIELD AND QUALITY OF LETTUCE HYDROPONIC CULTIVATION

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The aim of this study was to investigate the effect of foliar spraying of vermiwash (VW) and effective microorganisms (EM) on yield, nutrient status and quality of lettuce. Six treatments *viz.* EM (1:100 v/v) - T<sub>1</sub>, 10% (v/v) VW - T<sub>2</sub>, 20% VW (v/v) - T<sub>3</sub>, 10% (v/v) VW + EM (1:100 v/v) - T<sub>4</sub>, 20% (v/v) VW + EM (1:100 v/v) - T<sub>5</sub>, without foliar spraying - T<sub>6</sub> (control), were arranged in a Completely Randomized Design with three replicates. Foliar spraying of EM and VW were done, respectively at 7 and 3 days interval. Two weeks old lettuce seedlings were transplanted in stationary culture hydroponics using Albert's fertilizer<sup>®</sup> at the rate of 1.5 g/L. The harvested lettuce was subjected to an organoleptic test by using 20 panelist and 5-point hedonic scale. Data were analyzed using Analysis of Variance in SAS and Friedman test in Minitab. At harvesting, shoot fresh weight and number of leaves were significantly ( $p < 0.05$ ) increased in lettuce plants in T<sub>1</sub>, T<sub>3</sub>, T<sub>5</sub> and T<sub>6</sub> than the T<sub>2</sub> and T<sub>4</sub>. Total nitrogen content of leaf tissues was significantly ( $p < 0.05$ ) higher in T<sub>5</sub> (44.89 mg/g DM) compared to the control (37.33 mg/g DM). The colour, texture, taste and the overall acceptability were significantly ( $p < 0.05$ ) increased in plants treated with EM and VW compared to control. In conclusion, the results of this experiment showed that the foliar spraying of EM (1:100 v/v) - T<sub>1</sub>, and 20% (v/v) VW + EM (1:100 v/v) - T<sub>5</sub> were suitable to enhance the quality of lettuce than growing lettuce with inorganic fertilizers alone.

**Keywords:** Effective microorganisms, Hydroponics, Lettuce, Quality, Vermiwash