

DIFFERENT NUTRIENT MANAGEMENT APPROACHES ON THE GROWTH AND YIELD PERFORMANCE OF HYBRID CHILLI MICH-HY 1

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The increasing costs of water-soluble fertilizers pose a significant challenge for chilli cultivation in polytunnels, emphasizing the need for cost-effective and sustainable alternatives. This study examined organic nutrient management (ONM) and integrated nutrient management (INM) strategies for chili cultivation in poly-tunnels. Four treatments; T1: Albert's solution (control), T2: recommended inorganic fertilizers only, T3: half the recommended rates of both organic and inorganic fertilizers (INM), and T4: organic fertilizers at recommended level only (ONM) were arranged in a Completely Randomized Design with three replicates in a poly-tunnel. Hybrid chilli seedlings (MICH HY1) were transplanted into pots filled with a mixture of topsoil and partially burnt paddy husk (1:2 ratio). Growth and yield parameters (plant height, number of pods, pod weight, pod length, SPAD reading, and characteristics of the growing medium (pH, EC, N, P, K) were assessed. The results showed that T2, T3, and T4 had the potential to produce yields similar to the T1. Furthermore, T3 reported the highest plant fresh weight (312.8 ± 70.32 g plant⁻¹) and dry weight (255.60 ± 16.65 g plant⁻¹). The highest length and diameter were observed in T4 with the values of 13.97 ± 0.57 cm pod⁻¹ and 12.65 ± 0.79 mm pod⁻¹ respectively. The highest ($p < 0.05$) SPAD value was reported in chilli plants grown in T2. Although EC was not significant among treatments, the pH was significantly lower in T2 (6.50). Total N, available P and exchangeable K contents were not significant among treatments indicating the availability of those elements is comparable in all treatments. This research highlights the potential of INM as an affordable and sustainable alternative for hybrid chilli cultivation in polytunnels, reducing dependency on Albert's solution.

Keywords: Hybrid chilli, Integrated nutrient management, Organic nutrient management, Water-soluble fertilizers