

EFFECT OF PARTIALLY BURNT RICE HUSK AND ORGANIC MATTER ON TOMATO GROWN UNDER SOIL MOISTURE STRESS

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Since moisture stress is critical for the production of tomato, this study was focused on identifying the effect of adding partially burnt rice husk (PBRH) on tomato (*Solanum lycopersicum* L). The experiment was conducted as CRD with six treatments; T1: PBRH and N, P, K rates with 40% field capacity (FC), T2: PBRH and N, P, K with 100% FC, T3: only N, P, K rates with 40% FC, T4: only N, P, K with 100% FC, T5: OM and N, P, K with 40% FC, and T6: OM and N, P, K with 100% FC. The PBRH and OM were applied before transplanting, at the rates of 0.125 kg per hill and 1 kg m⁻² respectively. The N, P, and K levels were maintained as recommended by the Department of Agriculture. Moisture conditions were maintained using TDR soil moisture meter. Growth parameters, yield, total P, and K of fruits, and total soluble solids (TSS) were analysed. According to results, the significantly highest ($p < 0.05$) plant height (1.3 m), root length (0.8 m), highest germination percentage (94.67%), and the highest yield (0.123 kg) were observed in T2. The significantly lowest plant height (1.12 m), root length (0.5 m), lowest germination percentage (40%), and the lowest yield (0.051 kg) was observed in T3. The significantly highest plant height (1.21 m), yield (0.08 kg) and root length (0.75 m), and germination percentage (82.67%) under the 40% field capacity was given in T1. T1 recorded the significantly highest ($p < 0.05$) total K and P levels. Moreover, there were no observable differences among the treatments for TSS. Overall, it can be concluded that there is a positive impact of applying PBRH on the growth, yield, and composition of tomato, grown under soil moisture stress.

Keywords: Moisture stress, Organic matter, Partially burnt rice husk