

## Evaluating the Effects of Myco-Vermicompost on the Growth Performance of Pak Choi (*Brassica rapa var. chinensis*)

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### INTRODUCTION & AIM OF STUDY

- Myco-Vermicompost, also called worm compost, is a nutrient-rich organic fertilizer produced by earthworms as they break down organic waste.
- The species of earthworm that was used in the study is *Eudrilus eugeniae* or known as African Night Crawler (ANC). The worms were fed with mushroom spent bag logs and mushroom wastes.
- It is nutrient-rich, enhances soil aeration, structure, and water retention.
- Biologically, Myco-vermicompost contains beneficial microorganisms that help suppress diseases, promote plant growth, and facilitate nutrient breakdown.
- Pak Choi is a leafy green vegetable from the Brassica family, known for its tender stalks and mild flavor.
- A fast-growing, cool-season crop, it thrives in temperatures of 15-20°C and prefers well-drained, fertile soil with consistent moisture and is ready for harvest in 30-60 days. Studies on Pak Choi's growth performance have focused on nutrient management, environmental factors, and alternative cultivation methods.
- Adjusting soil or soilless systems to meet their specific growth requirements enhances overall productivity.
- This review highlights Myco-vermicompost produced by African Night Crawlers (ANC) worms that play an organic fertilizer role with different soil media compositions of rice husk biochar and topsoil to grow Pak Choi (*Brassica rapa var chinensis*) on a small scale, emphasizing its sustainable benefits.

### MATERIALS & METHOD



No. of Samples: 30

T1-Vermikompos (V)

T2- Rice Husk Biochar (RHB)

T3-Top Soil (TS)

T4-Vermicompost + Rice Husk Biochar (V+RHB)

T5-Vermicompost + TopSoil (V + TS)

T6- Vermicompost + Rice Husk Biochar+ TopSoil (V + RHB + TS)



### RESULTS & DISCUSSION

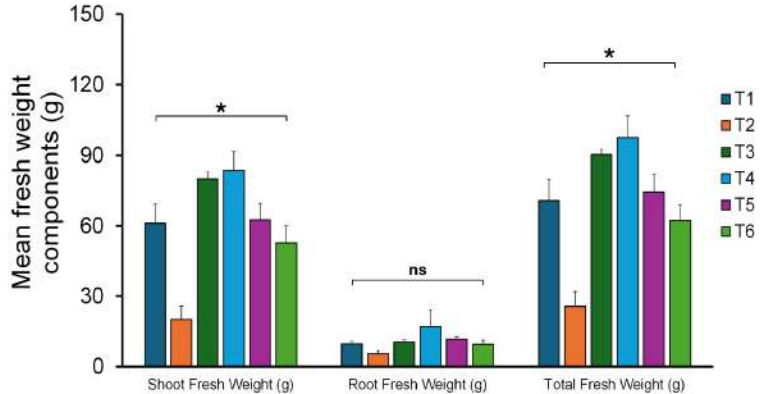


Figure 1. Effects of myco-vermicompost on the fresh weight components. \*, \* or ns - significant or not significant (ns) at  $P \leq 0.05$  and  $P \leq 0.001$  (respectively) according to the Duncan Multiple Range Test (DMRT).

Statistical analysis indicates significant differences in shoot fresh weight among treatments ( $P < 0.05$ ) (Figure 1). Treatments T3 and T4 show the highest shoot fresh weights (above 90 g), significantly higher than T2, which recorded the lowest value (~30 g). Root fresh weights are uniformly lower compared to shoots but exhibit notable differences, with T4 and T6 being significantly higher than T2. Total fresh weight, heavily influenced by shoot fresh weight, is significantly greater in T3 and T4, surpassing 120 g, while T2 has the lowest total biomass.

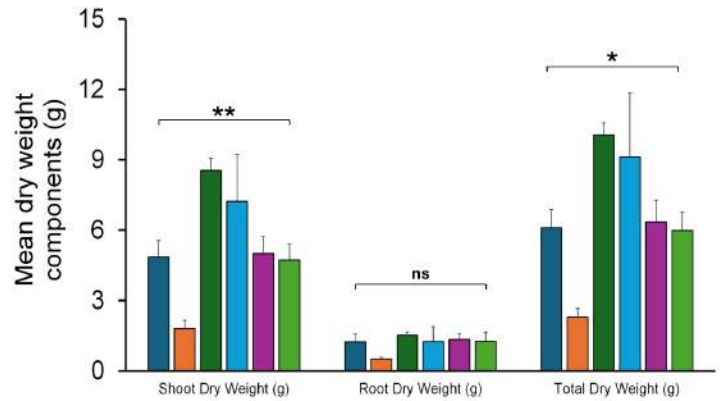


Figure 2. Effects of myco-vermicompost on the dry weight components. \*, \* or ns - significant or not significant (ns) at  $P \leq 0.05$  and  $P \leq 0.001$  (respectively) according to the Duncan Multiple Range Test (DMRT).

Statistical analysis reveals significant differences ( $P < 0.05$ ) in shoot dry weights among treatments (Figure 2), with T3 and T4 displaying the highest values (approximately 9-10 g), significantly exceeding T2, which recorded the lowest (~2 g). Root dry weights show less variation but remain significantly lower than shoots across all treatments, with T4 and T6 outperforming others. Total dry weight reflects the trends in shoot dry weight, with T3 and T4 demonstrating significantly higher values, emphasizing their role in maximizing overall biomass.

### CONCLUSION

The study revealed that myco-vermicompost as a growth medium had a significant effect on the fresh and dry weight of Pak choi's leaves and roots. Among all treatments, T4 (50% vermicompost + 50% rice husk biochar) gave the highest Pak choi's wet weight (97.48±25.89 g). In the meantime, the highest Pak choi's dry weight (10.06±0.50 g) was recorded from T3 (100% topsoil).

### FUTURE WORK / REFERENCES

Further studies of this myco-vermicompost to get precise and accurate data by incorporating more integrated ratios of certain nutrient sources (vermicompost, chemical fertilizers, vermitea, and simple compost) in a various soil types and agro-climatological scenarios.