

Microbial Amendments in Peat-Free Potted Herbs

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Microbial Amendments in Peat-Free Potted Herbs

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Abstract

This study aims to promote the potential of Peat-Free growing media (or substrate) to replace traditionally used Peat based growing media in commercial potted herb production. The basis of this study employs the use of Mycorrhizal Fungi and Plant Growth Promoting Rhizobacteria as amendments for the improvement of growing media. Increased crop growth and quality are observed from the inoculation of mycorrhiza on Peat-Free and Peat growing media, in both Commercial and research environments. Plant Growth Promoting Rhizobacteria had a less significant impact on crop quality. Crop homogeneity, Gas emissions and Phosphate buffers were also assessed in this study. Overall, Peat-Free growing media, amended with Mycorrhizal fungi demonstrate significant potential to surpass traditional, Peat based growing media.

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| Abbreviation | Meaning |
|--------------|--------------------------------------|
| AMF | Arbuscular Mycorrhizal Fungi |
| PGPR | Plant Growth Promoting Rhizobacteria |
| HMS | Horticultural Management System |
| NMS | Nursery Management System |
| MLF | Micro Lead Frame |
| DFN | Dual Flat No Lead |
| SDA | Serial Data Line |
| SLC | Serial Clock Line |
| SPME | Solid Phase Microextraction |
| IDE | Integrated Development Environment |
| SSH | Secure Shell |
| TVOC | Total volatile organic compound |
| RH | Relative Humidity |
| UAV | Unmanned Aerial Vehicle |
| LIDAR | Light Detection and Ranging |
| GIS | Geographical Information Systems |
| GCMS | Gas chromatography–mass spectrometry |
| NMR | Nuclear magnetic resonance |
| HPS | High Pressure Sodium |
| LED | Light Emitting Diode |
| RGB | Red-Blue-Green |
| RLC | Root Length Colonisation |
| GHG | Green House Gas |
| NGO | Non-governmental Organisation |

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