

RINGKASAN

Mikoriza merupakan jamur tanah yang bersimbiosis dengan sebagian besar perakaran tanaman. Tanaman kopi termasuk salah satu inang tempat mikoriza berkoloni. Perbedaan teknik budidaya pada tanaman kopi berpengaruh terhadap kualitas tanah serta populasi mikroba yang terdapat di dalam tanah, salah satunya yaitu mikoriza. Teknik budidaya kopi secara organik dapat memberikan pengaruh lebih baik terhadap kualitas tanah dan populasi mikoriza di dalam tanah dibandingkan dengan teknik budidaya secara non organik. Penelitian ini bertujuan untuk membandingkan sistem pengelolaan lahan secara organik dan non organik terhadap sifat kimia tanah dan keberagaman mikoriza arbuskula pada tanah.

Penelitian ini dilakukan di Laboratorium Perlindungan Tanaman dan Laboratorium Tanah Fakultas Pertanian Universitas Jenderal Soedirman Purwokerto. Penelitian dilakukan selama 5 bulan yaitu dari bulan Maret sampai Agustus 2024. Metode deskriptif dengan pengambilan sampel menggunakan metode *Purposive Sampling* untuk menentukan sampel tanah tanaman kopi. Isolasi mikoriza arbuskular menggunakan metode tuang saring dan *Sucrose Centrifugal Technique*.

Hasil penelitian menunjukkan bahwa jumlah populasi mikoriza yang ditemukan pada lahan budidaya kopi organik menghasilkan 73 spora dari 7 genus spora mikoriza yang berhasil diisolasi dan diidentifikasi. Jumlah populasi mikoriza yang ditemukan di lokasi lahan budidaya kopi non organik terdapat 51 spora dari 7 genus spora mikoriza yang berhasil diisolasi dan diidentifikasi. Hasil analisis kimia tanah pada lahan kopi organik nilai N, K tersedia, C-organik dan pH lebih tinggi. Nilai P tersedia pada lahan budidaya kopi non organik memiliki nilai lebih tinggi dibanding lahan budidaya kopi organik.

SUMMARY

Mycorrhiza is a soil fungus that is symbiotic with most plant roots. Mycorrhiza has the potential to be used as a biofertilizer material because of its role in P inhibition. Coffee plants are one of the hosts where mycorrhiza colonize. Different cultivation techniques in coffee plants affect soil quality and microbial populations in the soil, one of which is mycorrhiza. Organic coffee cultivation techniques can have a better effect on soil quality and mycorrhizal populations in the soil compared to non-organic cultivation techniques. This is due to the addition of organic matter which has an effect in improving soil structure and mycorrhizal populations. This study aims to compare organic and non-organic land management systems on soil chemical properties and arbuscular mycorrhiza diversity in soil.

This research was conducted at the Plant Protection Laboratory, Soil Laboratory, Faculty of Agriculture, Universitas Jenderal Soedirman Purwokerto, for 5 months from March to August 2024. The research method used was purposive sampling method to determine the soil samples of coffee plants. Isolation of arbuscular mycorrhiza using filter pouring method and Sucrose Centrifugal Technique.

The results showed that the number of mycorrhizal populations found in organic coffee cultivation land produced 73 spores from 7 genus of mycorrhizal spores that were successfully isolated and identified. Whereas in the location of non-organic coffee cultivation land there were 51 spores from 7 genus of mycorrhizal spores that were successfully isolated and identified. For the results of soil chemical analysis on organic coffee land, the values of N, available K, C-organic and pH are higher. While for the value of available P on non-organic coffee cultivation land has a higher value than organic coffee cultivation land.