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MOLER DISEASE CONTROL IN SHALLOTS USING BOTANICAL PESTICIDES JENGKOL PEEL POWDER AND ITS IMPACT ON MICROBIAL BIODIVERSITY IN PEATLANDS

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ABSTRACT

Chemical pesticides are still used to control Moler disease on shallots. The impact has the potential to kill macro species as well as non-target bacteria. Several prior researches have shown that botanical pesticides can suppress plant-disturbing organisms, but data on their impact on beneficial microbes is still limited. Hence, the impact of applying jengkol peel to control the primary disease of shallots and its impact on non-target organisms in peatlands was investigated in this study. The study was carried out in Landasan Ulin, South Kalimantan, from April to November 2021. Treatments were t0 (negative control), t1 (positive control, fungicide), t2 (0.125 kg/ha jengkol peelpowder), t3 (0.25 kg/ha jengkol peelpowder), and t4 (0.375 kg/ha jengkol peeljengkol peel powder). The parameters observed were the intensity of moler disease, the components of shallot production, species diversity, species richness, the evenness of microbial species, and the dominance index. The results showed that the application of jengko lpeel powder could suppress the attack of moler disease on shallots. Microbial diversity in shallot plantations treated with botanical pesticides and those not treated with botanical pesticides was similar, in the moderate range, as in shallot plantations treated with chemical pesticides. The species richness index, dominance index, and balance index had low-status values. The types of microbes found were *Trichoderma* sp., *Aspergillus* sp., *Fusarium* sp., *Mucor* sp., *Aeromonas* sp., *Corynebacterium* sp., *Enterobacter* sp. *Sphingomonas* sp., and *Penicillium* sp. The microbial population was affected by pesticide application. Plants that were not applied with botanical pesticidesbotanica lpesticides or chemical pesticides had fewer microbes. The application of botanical pesticidespesticides produced various impacts, the higher the dose, the lower the microbes in the onion rhizosphere.

Keywords: evenness of species, jengkol peel, microbes, species diversity, species richness.