

## Cover letter

Some pesticides derived from plants have a negative impact on natural enemies and pollinators because basically botanical pesticides have active ingredients similar to synthetic pesticides so that they can have a negative impact on natural enemies.

Due to the limited understanding of the impact of plant-based pesticides on natural enemies and microorganisms in most agricultural lands, it is still recommended to use plant-based pesticides as an alternative to controlling pests and plant diseases that are environmentally friendly.

One of the materials available in nature that can be used as a botanical pesticide to control pests and plant diseases is jengkol peel waste. Based on the research, it was found that the chemical compounds contained in the skin of jengkol contain terpenoids, saponins, phenolic acids and alkaloids, there are included in the secondary metabolite class that can protect plants from pests and plant diseases. Therefore, in this study, we will examine the application of jengkol peel in controlling the main diseases of shallots and their impact on microorganisms in shallot plantations on peatlands.

From this research it was found the application of jengkol peel 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, dominance, 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 application of botanical pesticides produced various impacts, the higher the dose, the lower the microbes in the shallot rhizosphere.

The team of authors agreed that the manuscript of the results of this study was published in the Pakistan Journal of Phytopathology. This manuscript consists of 7 tables and no figures. The total number of pages for this draft is 19 pages. We hope that this manuscript can be published in the Pakistan Journal of Phytopathology.

Thank you.  
Yours faithfully  
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