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Trichoderma spp Consortium and Its Efficacy as Biological Control Agent of Ganoderma Disease of Oil Palm (Elaies guineensis Jacquin)

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Abstract : Oil palm industries particularly in Malaysia and Indonesia are being devastated by Ganoderma disease caused by Ganoderma spp. To date, this disease has been causing serious oil palm yield losses and collapse of oil palm trees, thus affecting its contribution to the producer's economy. Research on sustainable and eco-friendly remedy to counter Ganoderma disease is on the upsurge to avoid the current control measures via synthetic fungicides. Trichoderma species have been the most studied and valued microbes as biological control agents in an effort to combat a wide range of plant diseases sustainably. Therefore, in this current study, the potential of Trichoderma spp. (Trichoderma asperellum, Trichoderma harzianum, and Trichoderma virens) as a consortium approach was evaluated as biological control agents against Ganoderma disease on oil palm. The consortium of Trichoderma spp. applied found to be the most effective treatment in suppressing Ganoderma disease with 83.03% and 89.16% from the foliar and bole symptoms respectively. Besides, it exhibited tremendous enhancement in the oil palm seedling vegetative growth parameters. Also, it had highly induced significant activity of peroxidase, polyphenol oxidase and total phenolic content was recorded in the consortium treatment compared to the control treatment. Disease development was slower in the seedlings treated with consortium of Trichoderma spp. compared to the positive control, which exhibited with the highest percentage of disease severity.

Keywords : biological control, ganoderma disease, trichoderma, disease severity
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