

## **Combination of biological agents in suppressing colonization of *Ganoderma boninense* of basal stem rot**

### **Abstract**

Basal Stem Rot (BSR) is the most destructive disease of oil palm caused by *Ganoderma boninense*. With no remedy to date, a study on the potential of microbes in suppressing colonization of *G. boninense* was designated. Three products contain combinations of Biological Control Agents (BCAs), (designated TR1, TR2 and TR3) to suppress the growth of *Ganoderma boninense* was investigated in this research. To understand the ability of the treatments in suppressing the BSR disease incidence, assessments in nursery and field trial were conducted. The results from both trials showed that TR 1, TR 2 and TR 3 were able to reduce the colonization of *G. boninense* based on the reduction of ergosterol content and Disease Incidence (DI) compared to untreated control. However, in nursery trial, treated seedlings showed an increment in DI after four months with lesser colonization based on the ergosterol quantities. Meanwhile, assessment in the field trial showed that TR 1 and TR 3 had significantly reduced the DI down to 12% and 24% and the amount of ergosterol to 0.663  $\mu\text{g g}^{-1}$  and 1.817  $\mu\text{g g}^{-1}$  of trunk tissues respectively. The use of BCAs could offer an alternative to control the *Ganoderma* infection in oil palm.