Research project of counterparts funded at UNTAD

Name	Counterpart	Title
Nur Edy	**B07**	The virulence of Ganoderma among tropical lowland transformation systems in Sumatra

Background and Method

In our previous study, we found diverse Ganoderma spp. as pathogens causing rot in forest, oil palm, and rubber trees. Stem rot disease caused by *Ganoderma* is spreading rapidly due to our inability to detect early stage infection in the field. Detection of the disease is challenging because the external symptoms are only visible when the plant is infected at the critical stage. We tested the virulence of all representative *Ganoderma* strains identified. We determined the growth rate of *Ganoderma* in synthetic media. We also measured the ability of *Ganoderma* strains to infect oil palm seedlings and the degree of disease caused.

Objectives

The study objective in this phase was to analyse the virulence of *Ganoderma* on oil palm seedlings.

Results

We noted that different Ganoderma strains, collected from different oil palm plots, had different infectivities for oil palm seedlings. *Ganoderma boninense* (BO2-4), collected from oil palm in Bukit Dua Belas, was the most virulent of all the strains tested. This *Ganoderma* inhibited plant growth and caused 70% disease severity in infected oil palm seedlings. Different *Ganoderma* strains have different virulence against the same species of host plant.

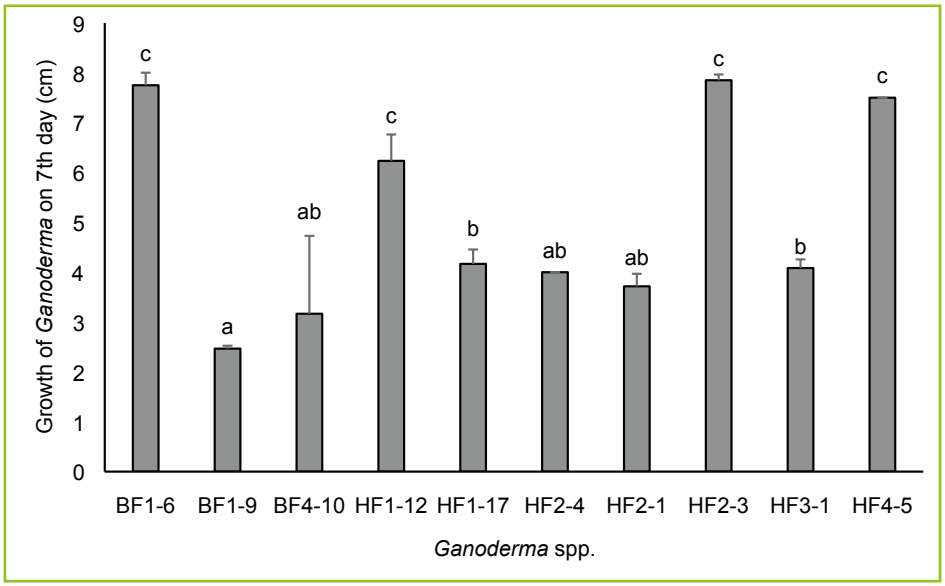

Figure 1.
Mycelial growth of *Ganoderma* spp. on 7 days after inoculation on PDA medium at 25°C. The *Ganoderma* were collected from forest trees in Bukit Dua Belas (BF) and Harapan (HF). Data are means +SD (n=3).

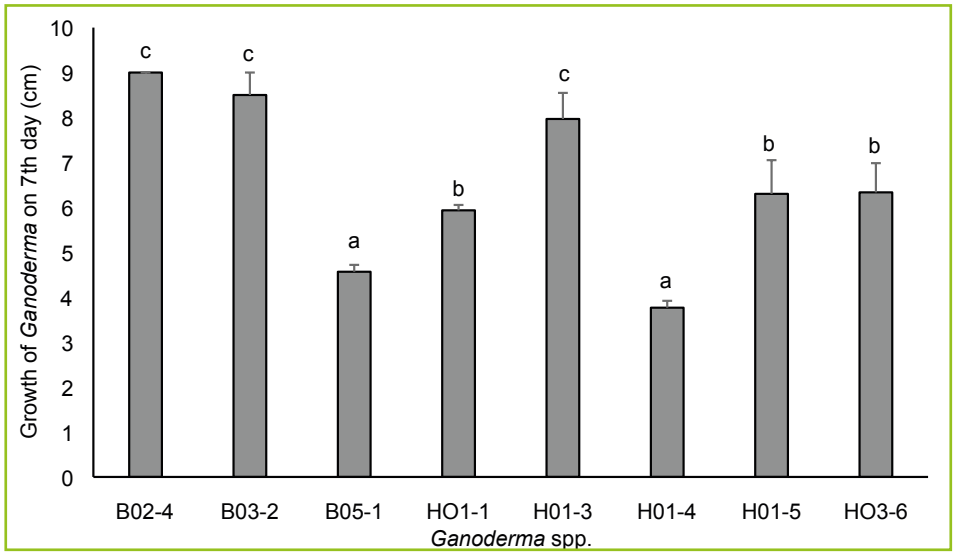

Figure 2.
Mycelial growth of *Ganoderma* spp. 7 days after inoculation on PDA medium at 25°C. The *Ganoderma* were collected from oil palm trees in Bukit Dua Belas (BO) and Harapan (HO). Data are means +SD (n=3).

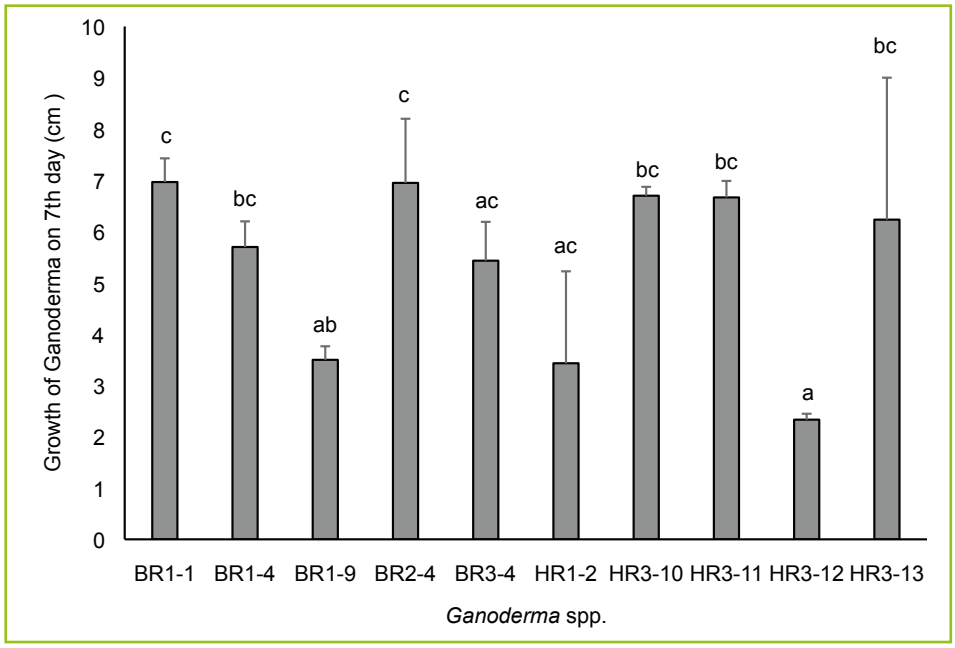

Figure 3.
Mycelial growth of *Ganoderma* spp. on 7 days after inoculation on PDA medium at 25°C. The *Ganoderma* were collected from rubber trees in Bukit Dua Belas (BR) and Harapan (HR). Data are means +SD (n = 3).

Figure 4. a)
Ganoderma sp. on PDA medium; b) dead oil palm seedling due to rot disease caused by *Ganoderma*. The *Ganoderma* basidiocarp appeared at the base of the oil palm seedling.

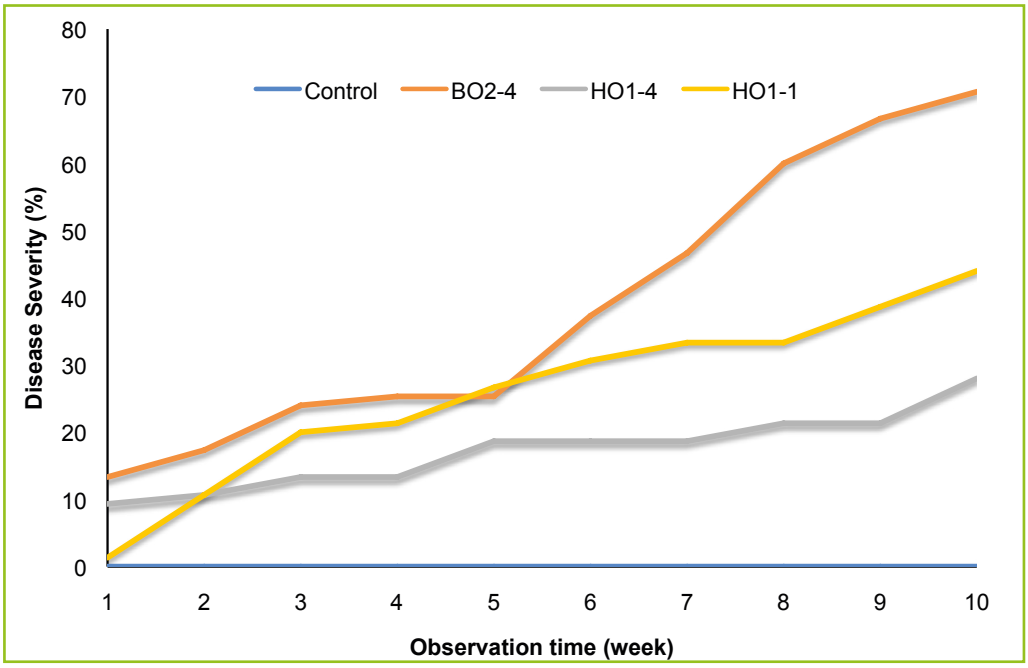

Figure 5.
Rot disease severity caused by *Ganoderma* in oil palm seedlings. Three *Ganoderma* used to virulence test were the fast growing (Ganoderma BO2-4), (*Ganoderma* HO1-1) with an intermediate growth speed, and slow growing (*Ganoderma* HO1-4). Data are means, n=15.