

Name Counterpart Title

**Triadiati,
Evan Vria Andesmora**

B02

Growth and Photosynthetic Rate of Jambi Oil Palm Seedling Accessions Treated by Different Waterlogging Durations

Research summary

Oil palm plays a major role in Indonesian economic development, particularly in Jambi Province. The economic benefits offered by the palm oil sector have significantly aided Jambi's economy, including increased farmer income, employment creation, and increased local revenue. Cultivated land is also frequently seen on sloping terrain. Cultivation on steep slopes might result in significant waterlogging. Rainwater trapped in hollows can cause the soil to become overly moist, causing root damage and plant damage. So, it will cause physiological conditions and development in oil palm plants to be less than optimal. This research is expected to provide information about accessions that have good adaptability to waterlogging.

To investigate those parameters, we conducted research in a greenhouse at IPB University. We used a factorial complete randomized block design with the accession of 3 months old oil palm seedlings from Muara Jambi (MJ), Tebo (TB), Tanjung Jabung Barat (TJB), Merangin (MR), and Simalungun (SM). The waterlogging treatments were carried out at two, four, and six weeks with three replications for each treatment. The water level is 2 cm above the surface of the soil. Measurements of photosynthetic rate were made on the mature leaves using Li-Cor 6400. Oil palm seedlings were harvested for fresh and dry weight.

Based on data on photosynthetic rate (Fig. 1), increase in fresh weight, and dry weight (Fig. 2), the Tebo accession of oil palm seedlings can grow well up to 6 weeks of waterlogging.

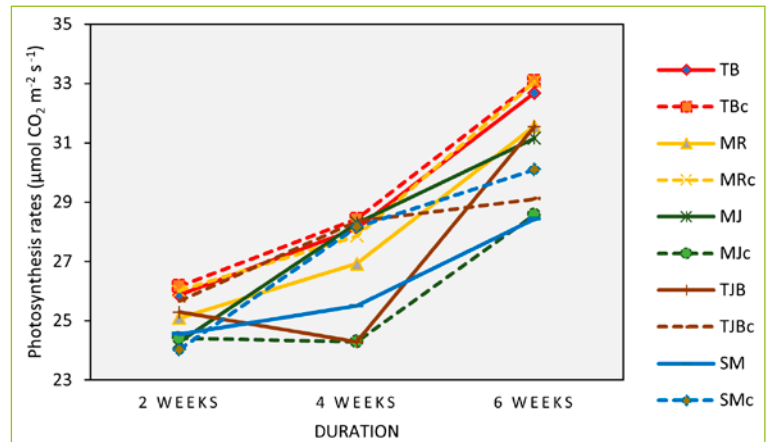


Figure 1. Photosynthetic rate of oil palm Jambi accessions treated by different waterlogging durations. (MR: Merangin, MR Con: Merangin Control, SM: Simalungun, SM Con: Simalungun Control, TJB: Tanjung Jabung Barat, TJB Con: Tanjung Jabung Barat Control, TB: Tebo, TB Con: Tebo Control, MJ: Muara Jambi, MJ Con: Muara Jambi Control)

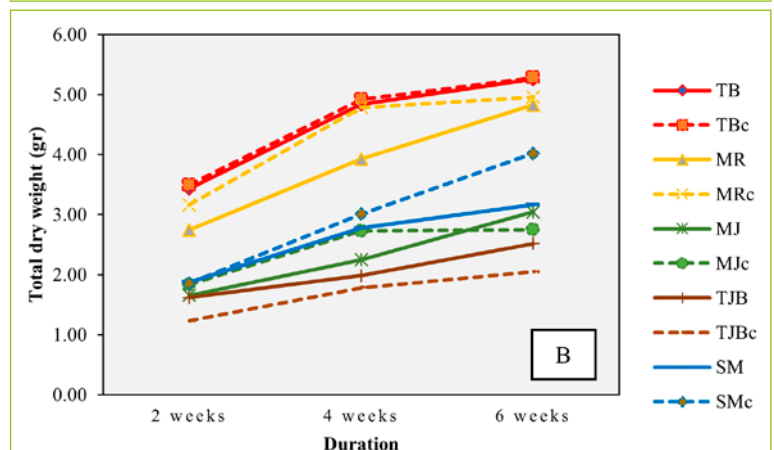
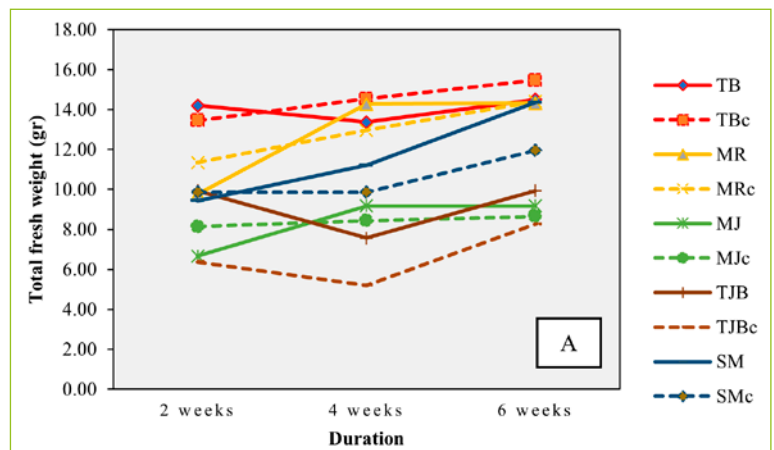


Figure 2. Total fresh weight (A) and dry weight (B) of oil palm seedlings from Jambi accessions treated by different waterlogging durations. (MR: Merangin, MR Con: Merangin Control, SM: Simalungun, SM Con: Simalungun Control, TJB: Tanjung Jabung Barat, TJB Con: Tanjung Jabung Barat Control, TB: Tebo, TB Con: Tebo Control, MJ: Muara Jambi, MJ Con: Muara Jambi Control)