

## **Antifungal activities against oil palm pathogen *Ganoderma boninense* from seaweeds sources**

### **ABSTRACT**

Basal stem rot (BSR) disease is the most devastating disease in oil palm which is caused by a fungal pathogen, *Ganoderma boninense*. However, to date, there is no reliable control for this disease. This study investigated the antifungal potential of seaweed extracts against *G. boninense* and screening of the compounds possessing this antifungal activity. Four seaweed species namely *Sargassum oligocystum*, *Caulerpa racemosa*, *Caulerpa racemosa* var. *lamouroxii* and *Halimeda macrophysa* were collected from Teluk Kemang, Port Dickson, Malaysia and their antifungal potential against *G. boninense* were evaluated. Two solvents with different polarities were used for crude extraction namely methanol and chloroform. Antifungal assay using crude methanolic and chloroform extracts from these seaweed species were carried out at various concentrations using the poisoned food technique. *Caulerpa racemosa* var. *lamouroxii* chloroform extract showed strong antifungal activity against *G. boninense* with 27.44% inhibition of the fungus followed by *C. racemosa* methanolic extract with 26.92% inhibition of the fungus at the lowest extract concentration of 0.25 mg/mL. The extracts were subjected to Gas Chromatography-Mass Spectrometry analysis and the dominant bioactive compounds detected in both extracts were phytol and 1-(+)-ascorbic acid 2,6- dihexadecanoate which were also found in plant extracts showing antimicrobial activities in previous studies. The findings suggested that local Malaysian seaweed species have high potential as a source of antifungal compounds which could be useful specifically for the application in the oil palm industry.

**Keyword:** Antifungal activity; Bioactive compounds; Seaweeds; Oil palm; Basal stem rot; *Ganoderma boninense*