

# DISCRIMINATION OF VOLATILE ORGANIC COMPOUNDS WITH DIFFERENT INVASIVE SEVERITIES AND SOIL PROFILES IN DURIAN INFECTED WITH PHYTOPHTHORA PALMIVORA

by Nur Aeni Ariyanti, Nur Sabrina, Anna Rakhmawati, Paramita Cahyaningrum K.

## ABSTRACT

Durian production has steadily become prominent contributor in Indonesia and Malaysia economy. This industry has been receiving great support from the government especially in improving its breeding and harvest production. For this purpose, grafting method is mainly used which involved grafting durians into seedling with great resistant against diseases. Yet, durian varieties show various response against disease even with the grafting method which brought upon a possible idea that durian varieties itself conjure resistance against pathogens, especially *P. palmivora* which causes stem cancer and stem rot. *Phytophthora palmivora*, the causal agent of durian stem cancer is a notorious plant pathogen that affects durian production in Malaysia and Indonesia. Previously, disease detection was done based on the visual estimation of the disease symptoms. However, this method should be performed by highly trained experts to produce reliable diagnosis. Meanwhile, molecular, serological and sensor-based detection system were expensive, complicated and time consuming. Recently, detection of diseased plants using the volatile organic compounds profiles has been established in many plant pathosystems for early detection. Poor drainage, compacted, heavy soils, soil acidity, boron deficiency, and aluminum toxicity among others, have all been proposed as causes of bud rot, but these factors also occur, either singly or in combination, in areas not affected by bud rot. The aims of this study are to analyze the volatile organic compounds profiles in durian upon challenged with *P. palmivora* from different plant genotypes and soil profile in the intermediate scale (Malaysia and Indonesia). By gaining data sets from in vitro (last year research) and in vivo environment (this year), the major goal of developing a quick, cheap and efficient early detection system to detect the presence of stem cancer disease for securing healthy and stable durian supply and at the same time safeguarding our environment will closely to realized.

Kata Kunci: *Invasive Severities; Phytophthora palmivora; Soil Profiles; Volatile Organic Compounds*