

Deployable molecular detection of *Burkholderia pseudomallei* causing melioidosis in Northeastern Peninsular Malaysia during the monsoon season

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ABSTRACT

Introduction: The deployable molecular detection of *Burkholderia pseudomallei* that cause melioidosis and the need for surveillance in epidemic areas are crucial for the control of disease progression and the environmental risk. There are high mortality of patients admitted in hospital. Melioidosis has occurred in remote areas where the laboratory support facilities were unavailable or limited. **Objectives:** The study were to determine the molecular detection of *Burkholderia pseudomallei* from the soil in various localities Northeastern Peninsular state of Terengganu. **Materials and methods:** The current methods involves the molecular detection of *Burkholderia pseudomallei* by extracting bacterial DNA from soil and confirmed by using portable real-time PCR thermocycler. Approximately 80gms of soil samples were taken from the surface and at 30 cm depth by using an augur and collected into sterile Falcon's Tubes. Each samples sites were located by using GPS system. The soil samples were collected from oil palm smallholdin, recreational area, agricultural park, village, orchids and school compound. RT-PCR were conducted by using the MyGo Mini with the use of a pair of primers for the detection of *B. pseudomallei* from the environment. **Results and conclusion:** High rate of isolation of *Burkholderia pseudomallei* from soil samples in Sekayu Agricultural Park (Durian Orchard 3/10), Sekayu Agricultural Park (Garden 3/10), Kuala Telemong Oil Palm Smallholding (6/10), Agro Park Orchard in Setiu (8/10), Jertih Village in Gong Kemuning (5/10) and Kuala Telemong Secondary School Teachers Quarters (3/10). The excessive disturbances of the soil from uncontrolled agricultural activities and recreational areas contributed to the distribution during monsoon. Improved techniques of molecular detection by deployable soil DNA extraction are needed for surveillance and control of disease outbreak in the environmental settings. The climate change with increase in rainfall pattern results in flooding has contributed to increase incidence of melioidosis in Malaysia

Key Words: *Burkholderia pseudomallei*, melioidosis, deployable, detection, polymerase chain reaction, DNA extraction