



International Journal of ChemTech Research CODEN (USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555 Vol.11 No.05, pp 458-466, 2018

Molecular Characterization of Mitochondrial Gene CO1 Barcode of Several Insect Species Carriers of *Phytophthora palmivora* at Cocoa Plantation in North Sulawesi Province

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Abstract : The existence of ants and termites that were very active in cocoa plants in the field was suspected as one of the causes of the spread of *Phytophthora palmivora* pathogen. The spread of pathogens occurs along with the activity of insects in which pathogens stick to the insect such as on the hairs of the feet, antennae, head, thorax and abdomen. Identification through molecular marker of DNA barcode to insect species acting as carriers of cocoa blight need to be performed. The study aimed to examine and analyze the nucleotide sequence of DNA of several insect species of ants and termites by amplifying CO1 mitochondrial genes. Molecular identification of the Mitochondrial CO1 Barcode genes of several insect species carrying *Phytopthora palmivora* in cocoa plantations in North Sulawesi Province were as follows: black ant (STHT) has a single DNA fragment measuring of 638 base pairs, very close as Dolichoderus rugocapitus type (Query ID: lcl / Query_98113), has a 94.8 % spacing. Taxonomically, it is included in the order Hymenoptera, subordo Apocrita, family Formicidae, and genus Dolichoderus. The red ant (STMK) has a single DNA fragment measuring of 658 base pairs, very close as Monomorium destructor type (Query ID: lcl | Query_38701), has a 100% spacing. Taxonomically, it belongs to the order Hymenoptera, subordo Apocrita, family Formicidae, and genus Monomorium. Termite (STMB) has a single DNA fragment measuring of 604 base pairs, very close as Nasutitermes corniger type (Query ID: lcl / Query_18869), has a 94.8% spacing. Taxonomically, it belongs to the order Isoptera, family Termitidae, and genus Nasutitermes.

Keywords : *Phytopthora palmivora, Dolichoderus rugocapitus, Monomorium destructor, Nasutitermes corniger,* Mitochondrial CO1 Barcode, PC.

International Journal of ChemTech Research, 2018,11(05): 458-466.

DOI= http://dx.doi.org/10.20902/IJCTR.2018.110549