

ABSTRACT

Sholihah, Siti Mar'atush. 2014. Phylogenetic Relationship Some cultivars Banana (*Musa sp.*) For Resistance of the Disease Based on *Resistance Gene Analog* (RGA). Thesis. Department of Biology, Faculty of Science and Technology of the State Islamic University of Maulana Malik Ibrahim Malang. Biology Supervisor: Dr. Evika Sandi Savitri, M.P. Religion Supervisor: Andik Wijayanto, M.Si.

Keywords: Banana Cultivars (*Musa sp.*), Resistance of the Disease, RGA.

Banana (*Musa sp.*) is one of the plants that have high genetic diversity, so that the properties of this plant are also diverse. One of the superior properties of this plant is resistant to disease (eg. cultivar Mas Kirana and Agung Semeru) and susceptible (cultivar Embug). Resistance and susceptible to disease is controlled by the RGA. Sequences of conserved regions in the RGA can be used as the basis for the primer design, so that there is a difference between resistant cultivars band amplification and susceptible. Therefore, this study aims to determine the phylogenetic relationship several cultivars of banana (*Musa sp.*) resistance to disease based on RGA.

The sample used in this study were 12 cultivars of banana leaves. Agung Semeru and Mas Kirana cultivar used as resistant controls. While cultivar Embug used as susceptible, to compare DNA band with 9 other cultivars. Primer- primer used was NBS-LRR conserved regions and NLRR. The research phase includes DNA extraction, DNA amplification and manufactured dendrogram with NTSYS software 2.01. Data Parameter in this study is the concentration of DNA, genomic DNA electrophoresis, DNA amplification and dendrogram results phylogenetic relationship.

The results showed that the DNA concentration obtained ranged from 159.2 to 1131 ng/ μ l. DNA electrophoresis showed some samples had thick ribbon and some still are *smears*. DNA amplification product measuring tape of 100 to 700 bp and are polymorphic. The results of the analysis of phylogenetic relationship produce cultivars Mas Kirana as a distantly related cultivars resistant to susceptible and resistant group II with similarity index of 0.54. Embug cultivars susceptible cultivars as related to the Barley cultivars and Raja Nangka with similarity index of 1.00 whereas the cultivars Kepok have similarity index of 0.81. Agung Semeru as control cultivars resistant II is related Susu Cultivar index similarity of both is 1.00, while the Agung Jawa Cultivar, Ambon Hijau and Raja Mala has similarity index of 0.91. Cavendish cultivars related with resistant cultivars II has a similarity index of 0.73 and Kidang cultivars the similarity index is 0.68.