

## ABSTRACT

**Qubais, Asifatul. 2014. Genetic Diversity of Some Mangoes (*Mangifera indica* L.) Based On RAPD (*Random Amplified Polymorphic DNA*) and PSY (*Pgytoene Synthase*) Gene Molecular Marker. Thesis. Department of Biology, Faculty of Science and Technology of the State Islamic University of Maulana Malik Ibrahim Malang. Biology Supervisor: Dr.EvikaSandi Savitri, M.P. Religion Supervisor: Andik Wijayanto, M.Si.**

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**Keywords :** genetic diversity of mangoes (*Mangifera indica* L.), RAPD, PSY gene, fruit colour, beta caroten.

Mango fruit is an important seasonal fruit as a commercial fruit favored by the people. Molecular characterization in plant breeding is necessary to select plants based on skin color mango fruit and content of beta carotene. RAPD markers are often used in the early stages of selecting the plant because it is relatively fast and inexpensive. However, the use of RAPD based on beta caroten contain of the fruit skin has not been studied. In addition, the use of RAPD still need to be folloed up with spesific molecular markers. Therefore, this study aims to determine the genetic variation of several varieties of mango based on RAPD and molecular markers PSY gene.

The sample used in this study are 4 varieties of mangoes, each representing a different fruit skin color, Garifta Merah, Gedong Gincu, Podang Kuning and Arumanis. RAPD primers used were OPA 12, OPA 13 and OPL 17. PSY gene amplification using two primers designed from mango Jinhuang's PSY gene sequences from China. Methode of research include DNA extraction, amplification of DNA, the genetic variation analysis with software Popgen 1.32 and manufacture dendogram with NTSYS 2.01. Parameter data in this study is the concentration and purity of genomic DNA, the number and length of band results of DNA amplification, the percentage of polymorphic loci, genetic distance and dendogram.

The results showed that the genomic DNA isolated DNA concentrations between 115.46 to 342, 23 ng / ml and purity of between 1.5558 to 2.0702. DNA amplification by RAPD produced 23 band with length between 180 to 2500 bp, including 21 polymorphic band with percentage 91.3%. The closest genetic distance value is 0.3629 which is between Garifta Merah with Gedong Gincu and Garifta Merah with Podang Kuning, while the value of genetic distance is the farthest Garifta Merah with Arumanis is 1.3437. Dendogram indicate that the Garifta Merah closely related to Gedong Gincu with a similarity coefficient of 0.73. Yellow Kuning has similarity coefficient of 0.64 with Garifta Merah group and Gedong Gincu. While Arumanis has similarity coefficient of 0.36 with the other varieties. Meanwhile, the result of PSY gene amplification produces only one band on Garifta Merah with a size of 400 bp only.