Deutscher Tropentag, October 8-10, 2003, Göttingen

"Technological and Institutional Innovations
for Sustainable Rural Development"

Towards a Molecular Identification and Transfers of Fruit Quality in Indonesian Pineapple Land Races

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Abstract

Pineapple (*Ananas comosus*) is amongst the important introduced fruits in Indonesia. This fruit is consumed both as fresh and processed product. Indonesia is not the center of origin of pineapple. Therefore, a wide hybridization between Indonesian pineapple land races that adapted to the Indonesian environment for centuries and newly introduced pineapple possessing quality of fruit, is one of the possible tools for improving Indonesian pineapple gene pool. The plant breeding lab of Padjadjaran University and Bogor Agriculture University started a collaborate pineapple breeding program since 1999. Both molecular analysis and hybridization were conducted. The breeding strategies are: i) Estimation of genetic distance based on morphological traits and DNA analysis, ii) Parental screening based on genetic distance and desired traits, iii) Hybridisation of selected parent, iv) Progeny selection, and v) Vegetatively propagation. Direct and indirect selection on fruit quality and yield was determined based on correlation between vegetative traits and fruit quality yield. Genetic distance of 35 pineapple genotypes had been estimated from morphological traits and RAPD. Four genotypes of Queen were selected to hybridize with local Subang pineapple (*Cayenne*) in order to improve the quality of subang pineapple. Reciprocal hybridization between Queen and Cayenne was also held in nursery of College of Agriculture, Padjadjaran University, Bandung, Indonesia. Indirect selection of progeny had been done based on length of leave, width of leave, and diameter of canopy since these three characters correlated with fruit weight, vitamin C, and sugar content of fruit. Selected progeny was planted and direct selection of yield and fruit quality would be done about ten months later.

Keywords: Indonesia, land races, molecular identification, pineapple, transfer fruit quality

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