

ABSTRACT

Aceh's local sweet kaffir lime (*Citrus hystrix*) is one type of kaffir lime with a distinctive characteristic, that is sweet fruit. Sweet kaffir lime is currently very difficult to obtain due to cultivation problems so that it is endangered. This research aimed to determine the level of diversity of local Aceh kaffir lime and sweet kaffir lime plants based on fruit quality and molecular markers. This research was conducted in North Aceh Regency and Plant Tissue Culture Laboratory, Faculty of Agriculture, Malikussaleh University and Molecular Laboratory and Quality Test of Tropical Fruit Plant Research Center (Balitbu, Tropika), Kementerian Pertanian RI, Solok - West Sumatra from August to December 2024. The research was conducted in two stages. The first stage was fruit quality characterization using the Descriptors for Citrus book published by the International Plant Genetic Resources Institute. The second stage was characterization with molecular markers on leaves using Random Amplified Polymorphic DNA (RAPD) technique. The results showed that kaffir lime kaffir lime and sweet kaffir lime local to Aceh showed a high level of similarity based on fruit quality. The similarity coefficient of 5 accessions of kaffir lime and sweet kaffir lime from North Aceh and Lhokseumawe ranged from 0.68 (68%) to 0.90 (90%). Some characteristics that showed differences include fruit weight, diameter, and length. The results of molecular analysis used RAPD technique showed significant polymorphism between kaffir lime and sweet kaffir lime. Genetic similarity coefficients ranged from 0.49 (49%) to 0.80 (80%) Sweet kaffir lime plants JPM1 and JPM2 have a low level of similarity of 49% compared to sweet kaffir lime plants JP1, JP2, JP3.

Keywords: characterization, fruit, leaves, molecular, quality.