Characterization of Banana Cultivars using *Molecular markers*

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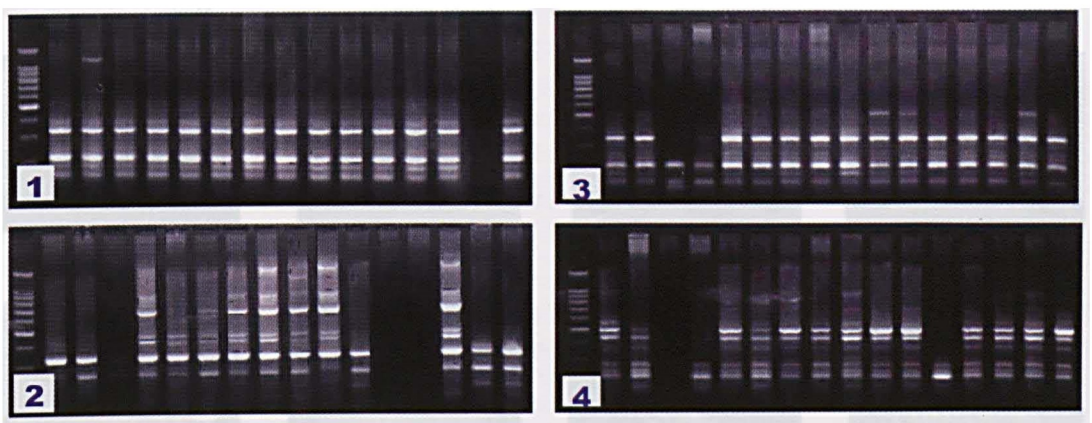
Wild bananas are diploid with sexual reproduction whilst cultivated bananas are mostly polyploid (triploid and tetraploid). Polyploid bananas are natural hybrids between two species, *M. acuminata* (genome A) and *M. balbisiana* (genome B). Varieties of bananas are propagated vegetatively mostly from sterile triploid. They are identified mainly on the basis of morphological characters. Morphological changes caused by environmental factors can be major obstacles to the accurate identification of variety. Thus, molecular markers become reliable tools to detect genetic variation within and among varieties of banana. LP-RAPD (random amplified polymorphic DNA) analysis was carried out on eight varieties of bananas namely Mas (AA), Berangan (AAA), Raja (AAB), Rastali (AAB), Awak (ABB), Nipah (BBB), Kapas and Nangka (AAB) to evaluate their genetic relationships. Twenty-five individuals in each variety were collected from Perak, Selangor, Melaka and Negeri Sembilan. Five long-primers, Peh A3, ERICIR, PUCMIF, BOXAIR and PEH A#6 were selected to amplify the genomic DNA. The banding patterns were observed and analyzed.



The results showed that the largest fragment was 2500 bp while the smallest was 100 bp. Primer Peh A3 was found to be the most polymorphic whereas primer ERICIR was the least polymorphic primer. The highest genetic distance was observed between Berangan and Nipah with a genetic distance of 0.825 while the lowest genetic distance was 0.727 between Kapas and Awak. The dendrogram revealed three major clusters. The first major cluster consists of Berangan, Rastali, Mas, Nangka and Raja. The second cluster made up of Kapas and Awak while Nipah variety was distinctly separated from the two clusters. Thus, the results suggest that the clustering of these bananas following their common genome compositions.

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