

Genetic Diversity of the Sri Lanka Yellow Dwarf Coconut Form as Revealed by Microsatellite Markers

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ABSTRACT: *Sri Lanka Yellow Dwarf (SLYD) is an important coconut form as a parent in the Sri Lankan national coconut breeding programme. Dwarf coconuts are known to be purelines, but this was observed not to be true in SLYD displaying uncharacteristic morphologies. The current research was conducted to characterize a sample of fifteen SLYD individuals at 10 SSR marker loci to determine the genetic diversity within this coconut form. One palm each of Sri Lanka Tall (SLT), Green Dwarf (GD) and Gon Thembili tall (GT) were used as reference coconut forms. Genomic DNA was extracted and PCR amplification was performed followed by 6% denaturing polyacrylamide gel electrophoresis to visualize the bands. Genotypic data were analysed using PowerMarker software. All the ten marker loci were polymorphic and more informative microsatellite loci for the tested population were identified. A total of 34 alleles were scored in the 15 individuals of SLYD ranging from a minimum of two to a maximum of five and a total of 22 heterozygous loci were identified spreading across the ten marker loci. The results indicated the SLYD to share bands more frequently with tall coconuts than GD. The dendrogram displayed three clusters of SLYD with one group including comparative form GD and another cluster including SLT and GT also. The observed heterozygosity and genetic and allelic diversity exceeds the levels that can be expected from dwarf coconuts which are self-breeding purelines. It is recommended to purify SLYD coconut form to ensure genetic purity of SLYD parental palm pool in Sri Lanka.*

Keywords: *Coconut, genetic diversity, hybridization, SSR markers, Yellow Dwarf*

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