

**FRUIT COMPONENT ANALYSIS AND SIMPLE SEQUENCE
REPEATS (SSR) GENOTYPING OF EXOTIC COCONUT
VARIETIES IN SRI LANKA**

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By
M.S.A.S.S MIRISSAGE

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ABSTRACT

Coconut is a socio economically vital crop in Sri Lanka. Due to its recently discovered health benefits, coconut industry is flourishing across the globe. Based on the molecular studies, Sri Lankan coconut germplasm was found to have a narrow genetic base. Hence, 23 exotic coconut varieties had been imported from 2002 to 2004 as embryos, seedlings have been generated via embryo culture and planted at the field gene bank to broaden the genetic base. The aims of the current study were to evaluate the comparative performance of different exotic coconut varieties under Sri Lankan climatic conditions for the identification of superior mother palms for new hybrid production and/or releasing them as elite cultivars to the national coconut replanting program and SSR genotyping for varietal identification/hybridity testing.

The research methods used for this study include Fruit component (FC) analysis and SSR genotyping. FC analysis investigated the fresh nut weight, husked nut weight, split nut weight, kernel weight, water volume etc. of different cultivars/varieties and data were analyzed using IRRI Statistical tool for Agricultural Research (Software). FC analysis was repeated in both dry and wet seasons to capture the environmental variations. DNA extracted, SSR genotyped, polyacrylamide gel electrophoresed and silver stained for varietal identifications.

According to the results, exotic variety Markem Valley Tall (MKV) reported highest fresh nut weight, husked nut weight, split nut weight, kernel weight and water volume which is significantly different to the recommended cultivars; CRIC60, CRI65, CRISL98 and Kapruwana. Kar Kar Tall (KKT) also reported superior fruit components. Further data collection and analysis needed to carry-out in future for further validate these results. Results of the SSR genotyping reported PCR amplifications for all the 6 primers used in the study, yet no varietal specific bands could be identified. SSR genotyping is needed to be repeated with more SSR primers in future. In conclusion, superior exotic coconut cultivars MKV and KKT would be valuable genetic resources for the future coconut breeding in Sri Lanka.

Keywords: Coconut Germplasm, Fruit Component Analysis, SSR Genotyping