

Morphological diversity of new coconut phenotypes identified from Unawatuna and neighbouring villages in the southern province

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Genetic improvement was recognised as an important strategy for increasing coconut productivity and thereby the production to meet increasing demands of various industries. Identification of true genetic diversity in populations is a strong prerequisite for a properly directed coconut breeding programme. Various morphological and molecular descriptor analyses of coconut have revealed a narrow genetic base in country's germplasm collection conserved *ex-situ* in field gene banks. Recent discovery of a

'coconut diversity hotspot' in the southern province, confined to Unawatuna and adjoining villages prompted this study, to assess morphological descriptor states of four new phenotypes; Ran pol, Juwan, Murusi and Bothal thembili identified from this region. Thirteen inflorescence and 27 fruit descriptors were recorded over a period of one year in above phenotypes along with four well known coconut phenotypes; Sri Lanka tall, Dwarf green, King coconut and San Ramon. High female-flower-bearing capacity with a large number of spikelets carrying female flowers, long central axis of inflorescence in Juwan, and exceedingly high weights of all components of the fruit in Ran pol were noteworthy observations made during the assessment. Principal Component Analysis (PCA) performed on data revealed number of female flowers, spikelets with female flowers, length of central axis, peduncle thickness, peduncle length, number of male flowers and all components of fruit as good indicators of diversity. The morphological differences observed in floral and fruit structures are encouraging. Clustering of phenotypes clearly reflect the traditional grouping; tall-like and dwarf-like coconuts. The true genetic variation of new coconut phenotypes would be further extensively elucidated by DNA assessments planned in future.

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