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Characterization of mountain papaya germplasm as a resource to improve *Carica papaya* L.

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*Vasconsellea cundinamarcensis*is is generally referred to as the highland or mountain papaya due to its morphological similarity to papaya and ecological preference for high altitudes. The wild species, *V. cundinamarcensis* has been researched by many scientists mainly due to its cold tolerance and papaya ringspot virus (PRSV) resistant traits. In Sri Lanka proper characterization has not been conducted on 'mountain' papaya although it represents an important resource for the improvement of *Carica papaya L.* Taxonomy of the mountain papaya accessions has not been explained clearly and the naturally hybridized accessions have not been reported in the country. Therefore, in this study mountain papaya varieties and different papaya cultivars including commercial varieties were collected and their morphological analysis was undertaken to investigate the morphological variations. The degree of genetic relatedness of mountain papaya in comparison with *C. papaya* cultivars was assessed using PCR amplification of DNA with 4 Simple Sequence Repeat (SSR) markers namely mCpCIR40, mCpCIR08, mCpCIR16 and S285. Diverse morphological traits were observed in mountain papaya including the resistance to papaya ringspot virus by the virus inoculation study. The dendrogram constructed using hierarchical clustering procedure revealed that mountain papaya germplasm was separately clustered. It was also revealed that some papaya cultivars exhibited similar morphological characteristics, raising the possibility that they have phylogenetic affinities and/or common origins. Some alleles amplified from SSR markers showed possible relationships with some morphological traits that would be useful in marker assisted selection. Further studies with many papaya germplasms are necessary to confirm the possibility of these markers to be used in papaya breeding programs.

Keywords: *Carica papaya* L., mountain papaya, simple sequence, repeat markers

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