

Lycopene and β -Carotene Variation among Genetically Diverse *Momordica cochinchinensis*

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Abstract : *Momordica cochinchinensis* (Cucurbitaceae) is used as food and traditional medicine in South East Asia and is commonly known as Red Gac. The fruit aril consists 70 times higher lycopene and 10 times higher β -carotene than all known fruits and vegetables. Despite its nutritional value there is little information available on its genetic variation and its influence on nutritional value. In this study; genetic and nutritional variation (lycopene and β -carotene) was investigated among 47 *M. cochinchinensis* samples collected from Australia, Thailand and Vietnam using molecular markers (RAPD and ISSR) and HPLC, respectively. UPGMA based cluster analysis of genetic data grouped Northern and Central Vietnam samples together but were separated from Australia, Thailand and Southern Vietnam samples. The concentration of lycopene was significantly higher among the samples collected from Central Vietnam ($p < 0.05$) and the concentration of β -carotene was significantly higher among the samples collected from Northern Vietnam ($p < 0.05$) indicating the existence of best varieties. This study provides vital information in genetic diversity and facilitates the selection and breeding for nutritious *M. cochinchinensis* varieties.

Keywords : *Momordica cochinchinensis*, lycopene, beta carotene, genetic diversity

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