A26. Microsatellite markers from expressed sequence tags (ESTs) of seaweeds in differentiating various *Gracilaria changii* from Malaysia

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In Malaysia, *Gracilaria* species are used in the food and cosmetic industries due to the high-quality agar and bioactive properties. However, the high plasticity of seaweeds often leads to the misidentification in the traditional identification of *Gracilaria* species. Molecular markers are important especially in the correct identification of *Gracilaria* species with high economic value. Microsatellite markers were developed from the expressed sequence tags (ESTs) of red seaweeds and used for differentiating *Gracilaria changii* collected at various localities. One primer pair gave significant results that can distinguish *Gracilaria changii* from various localities based on the variation in repeated nucleotides. The UPGMA dendrogram analysis grouped *Gracilaria* species into three main clades: (a) *G. changii* from Batu Besar (Malacca), Sandakan (Sabah), Bintulu (Sarawak), Batu Tengah (Malacca), Gua Tanah (Malacca), Middle Banks (Penang), Sg. Merbok (Kedah), Teluk Pelandok (Negeri Sembilan), Pantai Dickson (Negeri Sembilan), Sg. Kong-Kong (Johor), and Sg. Pulai (Johor); (b) *G. changii* from Morib (Selangor); and (c) *Gracilaria changii* from Pantai Dickson (Negeri Sembilan), Gua Tanah (Malacca), Sg. Merbok (Kedah), Sg. Kong-Kong (Johor) and Sg. Pulai (Johor). Three different genotypes of *Gracilaria changii* were obtained and *G. changii* from Morib, (Selangor) has its unique fingerprint pattern that can be distinguished from other populations. This showed that the SSR primer set that we developed was able to differentiate *Gracilaria changii* from different populations into three genotypes due to the polymorphisms caused by the variability in the number of tandem repeats.