Table S1. Characteristics of 33 microsatellite loci developed for *Gracilaria vermiculophylla* that showed monomorphism, non-amplification, or multi-locus genetic determinism: Acc. No. = genbank accession number; locus; motif; primer sequences; Profile: one- or multi-locus genetic determinism, no amp. indicates non-amplification; *N­tall* = total number of alleles.

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| **Locus** | **Acc. No.** | **Motif** | **Primer sequence** | **Profile** |
| Gverm\_10883 | KT232098 | (AAG)7 | F: TCCCATCAGCCAACAGTAGAR: GCAGAGCTTGGTAGGCATTC | one |
| Gverm\_7969 | KT232099 | (ATC)6 | F: CGATCCTTCCTCCTGTGGTAR: AATTGGGATACGCAATACGG | one |
| Gverm\_13240 | KT232100 | (ACG)8 | F: AACACATTGCTTCCGTTCTTGR: CTGCGAAGCACAAGTGATGT | one |
| Gverm\_2178 | KT232101 | (ACG)6 | F: ATTTGCACCGGTAAAACTGGR: GGCTGTCATGCAAGATGATG | one |
| Gverm\_12220 | KT232102 | (AC)7 | F: TGACTCGAGGAGTGCAGATGR: CTTTTGCCAGCAATGCAATA | one |
| Gverm\_10926 | KT232103 | (AC)7 | F: CTTTTGCCAGCAATGCAATAR: TGACTCGAGGAGTGCAGATG | one |
| Gverm\_10612 | KT232104 | (AAG)7 | F: GCAGAGCTTGGTAGGCATTCR: GGCAACACCATTGGACTCTT | one |
| Gverm\_12990 | KT232105 | (AC)7 | F: GGGCGTAGAGAGCTGAAAGAR: TCGCCGTTTTTCTCCTACAC | one |
| Gverm\_9808 | KT232106 | (AG)10 | F: GCCTGTTCCTCATCTTTTGGR: GCGACAGAAGAGGCGACTTA | one |
| Gverm\_10115 | KT232107 | (AG)8 | F: CAGGGGCTACTCACCTTCACR: GTGTGTCTTGATCCGCTGTG | one |
| Gverm\_10134 | KT232108 | (AC)8 | F: CCGAAAGATTAGCGATCCACR: CTCCCCCTCTTGGTTTTGTT | one |
| Gverm\_871 | KT232109 | (AG)9 | F: ACACGGGTCTCATGTTCCTCR: AGGAGCGCAGTCCAAGTAAA | one |
| Gverm\_3707 | KT232110 | (AG)10 | F: ACGACTCACGGGTTGTTTTTR: AAGCAGACCAGCACATTTCA | one |
| Gverm\_4346 | KT232111 | (AC)8 | F: ATCGCTCTTCTTCGGCTACAR: AGGGATGACTCACCAAGTGC | multi |
| Gverm\_263 | KT232112 | (ACG)9 | F: CACATTGCTTCCGTTCTTGTTR: TGAGTTCGTCGTCACGATTC | multi |
| Gverm\_12453 | KT232113 | (AG)13 | F: GAAGACTGACCGGAATCTGCR: ACAATCAACACGCAGCTCAG | multi |
| Gverm\_13408 | KT232114 | (AAG)9 | F: GGGAACGCATATCTTTGTGGR: GATACGGGAACAGCGTTTGT | multi |
| Gverm\_8854 | KT232115 | (AAAT)5 | F: TGCGCAGGAAAGGGTTAATAR: ATCCCTCGTGATAGGCAAAT | no amp. |
| Gverm\_6659 | KT232116 | (AC)6 | F: TGGTACGTGATCCCAGTGTGR: CATCGTGCTTCACCACATTC | no amp. |
| Gverm\_85 | KT232117 | (ACC)6 | F: AAAGTGGAGGCAGCTATGGAR: TCCCCAATGAACTCATGACA | no amp. |
| Gverm\_5509 | KT232118 | (AC)9 | F: ACTTTGCACCTTTGCACCTTR: GTTGGAATGGTTCTGCGATT | no amp. |
| Gverm\_269 | KT232119 | (ACG)9 | F: CACATTGCTTCCGTTCTTGTTR: TGAGTTCGTCGTCACGATTC | no amp. |
| Gverm\_3258 | KT232120 | (AC)9 | F: AACTGGAGCTTGGGATGCTAR: CCGTCTCTGTTTCTTTCTAGTGC | no amp. |
| Gverm\_3883 | KT232121 | (ACAG)20 | F: ATCGAGATATTTACACGCAACAR: AGAGGGCAGTTAGATTGTCTGA | no amp. |
| Gverm\_5516 | KT232122 | (AAC)8 | F: AGTTGTAACAGCGGGAAACGR: CCCTGTTGCGAATCTTCTGT | no amp. |
| Gverm\_6564 | KT232123 | (AAC)13 | F: CCCTAAGCTCTGCCATTGTCR: TGCGCTGTAACAAGAAGAAGA | no amp. |
| Gverm\_7244 | KT232124 | (AAGG)20 | F: CTGCATCAACACGATTACGCR: GATATGGGTGGACGAGTGCT | no amp. |
| Gverm\_8378 | KT232125 | (AC)20 | F: CCAACCTCTCCTCCTGTTTGR: TGTACGCTGCAATGCTGAAC | no amp. |
| Gverm\_8448 | KT232126 | (ACC)8 | F: AACTGGAACTGCAAACAATGGR: GCTTGTTGATGAGCCTGTTG | no amp. |
| Gverm\_8535 | KT232127 | (AC)11 | F: CGTACAGAATGGGGGATTTGR: GGAAGATGGATGTGCAGGTT | no amp. |
| Gverm\_11521 | KT232128 | (AC)11 | F: AAAGGTGGCATTGAGTCAGCR: TTCATTTGCCACTCTCTAAGCA | no amp. |
| Gverm\_11615 | KT232129 | (ATCC)17 | F: TGAAACGCCAATAAGTTTCTGTTR: CACTGTTAGACAACCCAGAAAGA | no amp. |
| Gverm\_11818  | KT232130 | (AAGT)18 | F: AAGGAAGAAGCATCACCTTCAR: TCGATTCTGATTGGTTAATAGCAA | no amp. |