

Development and application of single locus genomic molecular marker for *Kappaphycus* and *Eucheuma* (Solieriaceae, Rhodophyta) seaweeds

Abstract

The division Rhodophyta includes members from the commercially important genera *Kappaphycus* and *Eucheuma*. The efficient cultivation of seaweeds depends upon the development of genomic molecular markers which can be applied to detect varietal differences and select strains which exhibit ideal growth characteristics. We developed 117 single loci DNA markers from shotgun genomic libraries derived from *Kappaphycus alvarezii*, *Kappaphycus striatus* and *Eucheuma denticulatum* and tested them across twelve phenotypes which are commercially cultured in Sabah, Malaysia. Sixteen of the markers amplified across all varieties of *Kappaphycus* implying a shared genetic identity. Eight of the markers could successfully differentiate between varieties of *Eucheuma* and *Kappaphycus* on the basis of DNA fingerprinting profiles. These markers will serve as resource for the identification and selection of red algae for commercial cultivation and their application can be extended to marker assisted selection (MAS) and hybrid development.