Agar properties of *Gracilaria* species (Gracilariaceae, Rhodophyta) collected from different natural habitats in Malaysia

ABSTRACT

The yield and quality of agar from Gracilaria species collected from distinct natural habitats (mangrove swamp, rocky shore, sandy mudflat) along the west coast of Peninsular Malaysia were evaluated in this study. The agar content was found to be significantly higher in G. changii and G. edulis growing in the mangrove swamp, while the lowest agar content was recorded for G. changii and G. edulis collected from the sandy mudflat. Higher agar gel strength was obtained from the three Gracilaria species collected from the mangrove swamp compared to those that live in the sandy mudflat and rocky shore. The intraspecific variations found in gelling temperature were well correlated with the trend of changes in agar gel strength, except for G. changii collected from the sandy mudflat and rocky shore. The intraspecific and interspecific variations of agar melting temperature did not show a consistent trend for all Gracilaria species tested. The agars of Gracilaria spp. collected from the rocky shore showed a significantly higher gel syneresis while the lowest gel syneresis was recorded for the agars of samples collected from the mangrove swamp, except for the agars of G. salicornia from different habitats which showed no difference. In conclusion, the mangrove swamp is a natural habitat which produces Gracilaria with good agar properties, in terms of agar yield, gel strength and gel hysteresis, thus it can be considered as a potential site for seaweed farming and mariculture for the agar industry in Malaysia.

Keyword: Agar; Agar yield; Gel strength; Gracilaria; Habitat