**Biological activities of enzymatically modified seaweed hydrocolloids**

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Having significant importance in both technologically and economically, hydrocolloids are the substances that interact with water to form colloid systems1. Recently, microbial enzymes which hydrolyse hydrocolloids have turned out to be a huge area of interest because the generated oligo-derivatives have shown potential biological activities (e.g., antibacterial, anticoagulant, antioxidant)2. As enzymes are highly specific to their substrates, degradation of hydrocolloids by microorganisms is more advantageous and generated oligomers are uniform in molecular weights3.

In this work, the crude enzymes from marine *Cellulophaga* species were extracted and purified by using ultrafiltration, salting out and gel filtration techniques. Molecular weight of the substrates was monitored by size-exclusion chromatography. The enzyme activity was estimated by determination of reducing sugar and measurement of total protein concentration in the sample.

The isolated enzymes were used to degrade seaweed hydrocolloids such as different types of carrageenans (e.g. kappa, iota, lambda and furcellaran), agars and alginates to acquire small molecular weight products (oligomers). Antibacterial, anticoagulant and antioxidant activity of these oligomers were tested. For comparison, biological activities of physically and chemically modified hydrocolloids were tested as well. It was found that the biological activities of enzyme modified seaweed hydrocolloid oligomers were significantly higher than in the case of hydrocolloids degraded by ultrasonication or acid treatment procedures. Having these enhanced biological activities, these enzymatically modified seaweed hydrocolloid oligomers can be employed in different areas of the food industry.

*References:*

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