DETERMINATION OF LOW MOLECULAR WEIGHT CARRAGEENAN IN CONFECTIONARY PRODUCTS

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Carrageenan has many uses in food including as a stabiliser, a gelling agent and a thickener. However some concern has been expressed regarding the occurrence of low molecular weight carrageenan, also known as poligeenan, in food products. Low molecular weight carrageenan has arbitrarily been defined as carrageenan having molecular weight below 50kDa and the recommendations from the scientific committee on food safety states that if possible no more than 5% of the carrageenan should be of low molecular weight [1]. The molecular weight distribution of pure carrageenan ingredients can be measured by high performance size exclusion chromatography (HPSEC) with light scattering detection [2 & 3]. However we were also interested in measuring the molecular weight distribution of the carrageenan in finished products. Unfortunately the food matrix complicates the analysis a great deal. In this work we attempted to design an analytical procedure to measure the molecular weight distribution of carrageenan in a product with a relatively simple recipe. The method is based on HPSEC calibrated with carrageenan standards produced in-house and characterised using multiple angle laser light scattering (MALLS). The biggest problem for the analysis (even in a relatively simple food matrix) was separation of carrageenan from the other food components.

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References

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