Effects of Sucrose on Mechanical Properties and Thermal Properties of Carrageenan-Konjac Mixed Gel

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Summary

In the food industry, κ-carrageenan, like agar and gelatin which are traditional food materials, is mainly used as a setting agent. It is known that κ-carrageenan, provides the formation of a hard, brittle gel, however, the combined use of κ-carrageenan and galactomannan represented by locust bean gum and tara gum provides the formation of a gelatinlike, elastic gel. κ-carrageenan-galactomannan mixed gel is being used in a wide range of foods such as dessert gel. Meanwhile, konjacmannan having a mannose backbone chains like galactomannan, is popular as the so-called "konjac product" in Japan. In a similar manner as galactomannan, the combined use of konjacmannan and κ-carrageenan was found to provide the formation of very elastic gel; hence, it has attracted special interest recently as a texture modifier. In this research, a tensile test was used to evaluate the mechanical properties of gel with high elasticity, effects on the mechanical properties of κ-carrageenan-konjacmannan mixed gel and those of sucrose. Also differential scanning calorimetry (DSC), was used to examine mixed gel's sol-gel transition.