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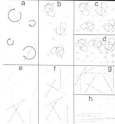
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Programme & Abstracts



P-086 - Poster

Textural Properties of Mixed Gels of Konjac Glucomannan, Kappa-Carrageenan, and Fish Collagen

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Konjac glucomannan is a major component of the tuber of *Amorphophallus konjac* K. Koch, which grows in South-east Asia¹. It forms a thermo-irreversible gel under alkaline conditions, which is known as Japanese traditional food "konnyaku"². Dessert jellies containing konjac glucomannan and another hydrocolloids such as kappa-carrageenan, which are called "konnyaku jellies", are popular as low calorie, fibre-rich, then healthy food in Japan since they were commercially available in 1980s³. The National Consumer Affairs Center of Japan announced that two seven-year-old boys were suffocated by konnyaku jelly in mini-plastic cup in 2007 and warned the choking hazard for the children and elderly people⁴. Similar type jellies containing konjac glucomannan are regulated in USA, EU and Korea. Traditional alkaline konjac gels, which are firmer and tougher to chew than konnyaku jellies are never claimed.

We studied texture of gels formed with konjac glucomannan and kappa-carrageenan by puncture test, 2-bite texture test, and viscoelasticity measurements. The mixed gels exhibited relatively low elastic modulus and large rupture stress at high compressive strain. The characteristics originated from konjac glucomannan may cause choking because the gels easily deform without rupture to be sucked into the throat.

Addition of the third hydrocolloids to the mixed gel can modify the physico-chemical characteristics. It is expected to decrease gel strength, and especially high elasticity caused by konjac glucomannan. As the additional hydrocolloids, gelatin and two fish skin collagens⁵ with differing molecular weight were selected. The effects of types of collagens and final concentration on texture of gels of mixed konjac glucomannan and kappa-carrageenan (50:50) were measured by mechanical instrumental tests, sensory evaluation and human mastication test using electromyography⁶.

When collagen concentration was low, the mixed gels exhibited high viscoelasticity and high rupture stress⁷. Although higher concentration of fish collagens did not prevent formation of the gel networks, the mixed gels ruptured at lower stress. Addition of fish collagens increased syneresis. Electromyography revealed that mastication activity of human subjects related to the mechanical properties of gels. Texture modification for reduction of risk of suffocation is discussed.

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P-087 - Poster

Investigation of the Effect of Whey Protein Concentration on the Properties of Soft Frozen Yogurt

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Yogurt has been attributed nutraceutical, therapeutic and probiotic effects such as digestion enhancement, immune system boosting, anti carcinogenic activity and reduction in serum cholesterol. Frozen yogurt is one of the yogurt types and frozen dairy products that have properties similar to those which ice cream and yogurt. The most important factor in frozen yogurt making industry is the stabilizer and the fat content. In this regard, the frozen yogurt formulation has a major importance on quality of final product. Amongst the different factors, the role of stabilizer and fat replacer is of an importance in making of frozen yogurt. Thus, in this study whey protein concentrate (WPC) which have emulsifying and stabilizing properties, was used in soft frozen yogurt production. Frozen yogurt mixture was formulated based on 4% fat, 0% MSNF, 11.5% sugar, 0.3% stabilizer, 2% flavour. WPC was added to mixture into 3 levels (0, 2.5 and 4%). Vanilla and strawberry concentrates were used as flavours. After 12 hours aging at 4°C, frozen yogurt mixtures were chemically (acidity of mixtures without flavouring agent, pH of mixture with flavouring agent, total solid and fat) and physically (specific gravity and dynamic viscosity) evaluated. Physical quality of frozen yogurt samples (overrun, melting rate) and organoleptic qualities (taste, texture, color and total acceptability) were examined. The results showed that those mixtures that had 4% WPC had the highest viscosity and the corresponded frozen yogurts had the mixture to melting. From the view of total acceptability, the sample with 2.5% WPC and strawberry concentrates as flavour ingredient had the highest score.

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Effect of Different Temperatures and Hydrocolloids on Rheological Properties of KetchupAmir KOOCHERK†, Amir GHANFI, Sepid M. A. RAZAVI, Sepid Ali MOJIBAZAVI and Taher MASOULIJEV†
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The rheological behavior of ketchup were determined