**Encapsulation of beta-carotene using polysaccharide-protein stabilised emulsions**

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The phase behaviour of mixtures of bovine serum albumen [BSA], low methoxyl pectin and sodium alginate have been studied as a function of pH and mixing ratio and phase diagrams constructed. Selected combinations of the protein-polysaccharide mixtures were used to prepare medium chain triglyceride[MCT], oil-in-water emulsions using two different methods. In the first method the emulsion was prepared using soluble protein-polysaccharide complexes, whereas in the second method an emulsion was first formed using BSA as the emulsifier and then the polysaccharide added afterwards. These are referred to as ‘mixed’ and ‘bilayer’ emulsions respectively. The ability of the complexes to stabilize oil-in-water emulsions prepared using the two different approaches was assessed by measuring the droplet size as a function of time using Laser Diffraction and Flow particle Image Analysis.

The ability of the emulsions to encapsulate and release beta carotene was investigated by dissolving beta-carotene in the MCT and forming mixed and bilayer emulsions. Small portions of the emulsions were then introduced into aqueous solutions at varying pH and ionic strength and the amount of beta carotene released was monitored by colorimetric analysis as a function of time.

The results have shown that polysaccharide-protein complexes have significant potential for use as novel emulsifiers in the controlled release of active ingredients.