**Extensional rheology of mixed linkage alpha 1,3 and alpha 1,6 glucans**

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Cohesion, e.g., the forces that keep a fluid together, is an important concept in soft matter, relevant to application areas as widely scattered as printable electronics, foods and food ingredients, personal care, and hygiene products. However, measurement technologies such as extensional rheology techniques are less explored than the relevance of these application areas may suggest. This is largely due to the experimental difficulties in executing these experiments over existing shear rheology or texture analysis techniques which may provide partial answers. This contribution focuses on the relationship of colloidal scale structure and interactions and the extensional rheology that is manifest at the macroscopic scale. Such understanding will provide the hydrocolloid scientist with specific guidance on how to design their hydrocolloid system with extensional properties in mind. This may be of relevance to a wide range of applications such as texture length in beverages and desserts, dispensing and printing in foods, management of swallowing disorders or reflux and controlling this aspect of the sensory experience of a food product. Specifically, in situ enzymatically generated polysaccharides will be presented for their suitability as a model system to study the impact of glycosidic linkage distribution on the solubility, colloidal morphology and interactions which set the macroscopic properties. Context will be generated by the study of more commonly known and well characterized hydrocolloids such as Xanthan gum and Cellulose gum. Concrete examples of applications will be presented, and the implications of the structural features imparted by the polysaccharide on the more complex food matrix discussed.