**Starch Suspension Mouthfeel: Correlating Sensory and Rheological Properties**

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Understanding starch suspension rheology is particularly crucial in formulating starch-thickened foods. To date, the rheological properties of starch suspension with respect to its functional characteristics (process tolerance and shelf stability) have been widely studied. However, the corresponding sensory attributes are less elucidated in the literature. The present study was performed to create a “viscosity-swelling volume” map of starch suspension and to evaluate the relationship between the rheological properties and the perceived texture of the starch suspension.

The physical and rheological properties of starch suspension can be categorized into three different concentration states, namely dilute, close-packed, and concentrated. With an understanding of phase volume [equivalent to concentration (c) × swelling volume (q) of each concentration state, i.e. cq], the viscosity prediction of the starch-thickened sample can be performed with the aid of “viscosity-swelling volume.” However, viscosity data alone is not sufficient to describe the complex sensory perception. Hence, a sensory study was conducted with trained panel using sauces prepared from different types of starch having various ranges of concentration and swelling volumes. Descriptive attributes were defined for the sauces, including appearance, tactile, and oral texture. The starch-thickened food samples with equal viscosity did not have identical texture as visualized by increased mounding on spoon with increase in elasticity at a constant viscosity. It was discovered that starch concentration (within same swelling power) has greater effect on the sensory perception as compared to starch swelling volume (within same concentration). Starch concentration plays a role in sensory adhesiveness and stringiness. On the other hand, a rise in the swelling volume resulted in increased firmness and thickness.

In summary, the textural attributes of starch-thickened foods were readily modeled in terms of concentration and swelling of starch. This can allow the food formulators to predict the textural characteristics of foods based on the concentration and swelling properties of starch.