**Oral Lubrication: From microgels to real food applications**

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Oral tribology is emerging as a new paradigm in oral processing to quantify friction and lubrication of food-saliva mixtures in the oral mucosa. It is now well recognized that ‘rheology’ (bulk property) is less dominant in the later stages of oral processing as compared to under-researched ‘tribology’ (surface property of food-saliva bolus based lubricants). In this presentation, oral lubrication will be discussed with three case studies highlighting the role of tribological measurements of lubricants that will range from microgels1,2 to real food applications3. It has been recently demonstrated that microgels (protein-based or emulsion-based) possess excellent lubrication properties without destabilization of the particles under mechanical shear or salivary enzymes and some of them also show aqueous ‘ball-bearing’ abilities depending upon their volume fraction. Such engineered microgels can have applications for designing low/ no-fat food products with ‘creamy mouthfeel’ or personal care products with ‘silky skin feel’ that require lubrication without compromising ‘control release’ properties. The relationships between oral lubrication and sensory properties will be further discussed using commercial dairy products with full fat and no/ low fat counterparts, which suggest that sensory distinction could be better predicted by lubrication data in iso-rheological samples. Oral lubrication is a ‘systems’ property and research is still in its infancy. Thus, selection of orally relevant tribological ‘system’ and quantitative relationships between instrumental data and texture-related sensory attributes are of paramount importance for successful future application of tribology in food research and industrial applications.

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