

Particle size distribution of natural peanut butter and its dynamic rheological properties

ABSTRACT

This study compared the dynamic rheological properties of natural peanut butter with commercial peanut butter at 25°C. The natural peanut butter was produced using ultra-high speed grinding (~20,000 rpm) at different grinding times (2–5 min) from peanuts of China and India. Multimodal particle size distribution was observed for all the samples. The linear viscoelastic region obtained from stress sweep test of the peanut butter produced at 2–3 min fell within the linear viscoelastic region of commercial peanut butter of 0.1–11 Pa. Longer grinding time (3.5–5 min) produced a shorter and lower linear viscoelastic region of 0.03–3 Pa. The storage modulus, G' is an increasing function of particle size distribution. All peanut butter samples exhibited elastic properties.

Keyword: Peanut butter; Particle size distribution; Rheology; Structure; Viscoelastic