Rheology of tomato sauce is important during the entire production chain up to consumption and digestion. The research about the calcium ions effects on the viscosity of tomato sauce were carried out often but not extensively. Recently it was found that Ca\(^{2+}\) cross-linking pectin in carrot-based suspensions (Kyomugasho, 2015).

Materials and Methods

**Materials**
Calcium chloride and magnesium chloride; Sodium citrate were obtained; Cold break tomato sauces were prepared by Dr. Fei in Dr. Campanella’s lab; and Commercial tomato sauces was purchased, from a local supermarket.

**Methods**
Rheological properties were determined by using a rotational AR-G2 Rheometer. Flow curves at 25 °C were obtained using a 4-blade vane rotor (radius=14 mm, height=42 mm) or parallel plate(40mm). Apparent viscosity was measured as a function of increasing shear rate in a range 0.1-100s\(^{-1}\) after a steady pre-shear step of 100 s\(^{-1}\). The measuring gaps were 3500μm and 1000μm for vane and parallel plate respectively.

**PSD test**
A Laser Scattering Spectrometer was used to characterize the particle size distribution (PSD).

**RESULTS**

**RESULTS**

The effects of calcium ion addition in excess on the rheology of carrot-derived suspensions were investigated and it was found that Ca\(^{2+}\) screens the negatively charged pectin at the surface of the particles, changing the rheological characteristics of the suspensions, such as yield stress and surface interaction, and finally the rheological properties?

1. What is the role of calcium ions in the tomato sauce?
2. How do calcium ions affect the particle size, particle interaction, and finally the rheological properties?

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**REFERENCES**


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