RHEOLOGICAL BEHAVIOR OF GEL BASED PROTEIN ISOLATED FROM WHEY AND BRANCHED CHAIN AMINO ACID

Paula V. Guedes, Lys Mary B. Cândido, Maurício Passos, Rilton A. de Freitas. Graduate Program of Food Technology, Chemical Engineering Departament, Federal University of Paraná, Curitiba, Paraná, Brazil.

The proteins isolated from whey (WPI) have a high biological value and are considered functional foods, acting promoting health. These proteins also have applicability in the processes of food technology due to its high solubility and emulsifying properties. The WPI and branched chain amino acid (BCAA) can be used as a food supplement for these purposes. The composition and concentration of polymer employed in the gel formulation influence the rheology and stability of the product. The rheology has been used to characterize the type of fluid and ensure cooking quality of the finished product. The objective of this study was to determine the rheological behavior of different gels based on WPI and BCAA. Samples in 20%, 30%, 40% and 50% protein concentration dissolved in water (w/v), and at concentrations of 20 to 40% WPI only used at concentration of 50% protein mixtures were WPI: BCAA of 25: 25: 30: 20 and 0:50. The samples were heated to 70°C for 20 min to form gels. They were stored for 24h at 10°C and analyzed in a rheometer. The oscillation frequency voltage of 0.05 Hz and 10 Hz was found stress linearity. Based on this became the oscillation frequency found and the values of elastic shear modulus (G'), viscous shear modulus (G'') and the complex dynamic viscosity (η*). The values in the frequency of 1 Hz varied from 1250 to 121600Pa (G'), 206.4 to 1102000Pa (G'') and 201600 to 1109000mPa.s (η*).