

A new study of the kinetics of curd production in the process of cheese manufacture

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ABSTRACT

This work is aimed at studying the role played by important variables such as temperature and rennet concentration in the coagulation process of cheese and the evaluation of their kinetics. Second-order kinetics was obtained for the process. The first kinetics corresponded to a fast process controlled by the enzyme chymosin that breaks the casein molecule at a specific bond, exhibiting to the medium hydrophilic and hydrophobic chemical groups. The second one was characterized by a rapid increment in the particle size associated with the aggregation. The Dynamic Light Scattering technique allowed measuring the aggregates size. The volume fraction of solids was determined from viscosity measurements, showing different profiles respect to the size profiles. The formations of the aggregates for rennet cheese were independent of time. Scanning Electron Micrograph images showed the formation of aggregates at different reaction times for unpressed cheese.