

Effect of Salt on Heat-induced Gelation of Food Proteins

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SUMMARY

The optimum heat-induced gelation of the mixed  $\alpha$  lactalbumin and  $\beta$ -lactoglobulin has been investigated at different concentrations of glutathione and NaCl by the gel strength determination. The gel strength was determined under the gelling conditions of pH 6.3, protein concentration 8% and heating at 80°C for 15 min. The optimum gel strength of the mixed  $\alpha$ -lactalbumin and  $\beta$ -lactoglobulin in ratio 2:8, 5:5, and 8:2 was obtained at glutathione 0 mM and NaCl 86 mM, glutathione 43 mM and NaCl 116 mM, and glutathione 45 mM and NaCl 83 mM respectively. A multiple regression analysis showed the significant contribution of NaCl and glutathione ( $p < 0.01$ ) to form the gel. In case of the gel formation influenced by glutathione, it was supposed that the glutathione reacted with intramolecular disulfide bonds in the  $\alpha$ -lactalbumin and  $\beta$ -lactoglobulin, and resulted in their conformational changes. Moreover, the gel-forming ability of  $\alpha$ -lactalbumin and  $\beta$ -lactoglobulin assisting each other in the mixed proteins gelation.