

## Effect of NaCl Present on Digestibility and Allergenicity of Major Allergens in Cow's Milk and Hen's Egg

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### Summary

Allergenicity and antigenicity of food proteins are generally dependent on their heat-stability and resistance to digestive enzymes. Using the methods of SDS-PAGE and immunoblots, we assessed peptic-digestibility of major milk proteins (casein,  $\beta$ -lactoglobulin ( $\beta$ -LG) and  $\alpha$ -lactalbumin ( $\alpha$ -LA)) in commercially available bottle milks in acidic pH range (pH 1.5 to 4.0), and we also investigated the effect of NaCl present on peptic digestibility of milk proteins at pH 2.0. The profile of peptic digestion of casein was similar at pH range of 1.5 to 3.5 where the intact proteins of casein disappeared rapidly, whereas lose digestibility of casein was found at pH 4.0. Peptic digestibility of  $\beta$ -LG and  $\alpha$ -LA were gradually digested at pH range of 1.5 to 2.5 and were almost resistant to the enzyme at over pH 3.0. To combine the facts that new born infants have low amount of pepsin and out of its optimum pH in their stomach, the low digestibility of  $\beta$ -LG and  $\alpha$ -LA at over pH 2.5 suggested that may be one of reason for causing these proteins to food allergens. In the presence of NaCl at pH 2.0, casein showed an almost similar profile to peptic digestibility in contrast to  $\beta$ -LG and  $\alpha$ -LA which were decreased their peptic digestibility by dose of NaCl concentration. This result suggested that consideration of NaCl present in cooking for infant foods may be necessary for digestibility of allergenic cow's milk proteins and prevent to milk allergy.