

Effects of Different Food Matrices on Viscosity and Protein Degradation during in vitro Digestion

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Abstract : Food is a worldwide concern. Among the factors that have influences on human health, food, nutrition and life style have been regarded as the most important factors since they can be intervened. While some parts of the world has been faced with food shortages and hence, chronic metabolic diseases, the other part of the world have been emerged from over consumption of food. Both situations can result in shorter life expectancy and represent a major global health problem. Hunger, satiety and appetite sensation form a balance ensures the operation of feeding behavior between food intake and energy consumption. Satiety is one of the approaches that is effective in ensuring weight control and avoid eating more in the postprandial period. By manipulating the microstructure of food macro and micronutrient bioavailability may be increased or reduced. For the food industry appearance, texture, taste structural properties as well as the gastrointestinal tract behavior of the food after the consumption is becoming increasingly important. Also, this behavior has been the subject of several researches in recent years by the scientific community. Numerous studies have been published about changing the food matrix in order to increase expected impacts. In this study, yogurts were enriched with caseinomacropptide (CMP), whey protein (WP), CMP and sodium alginate (SA), and WP + SA in order to produce goat yogurts having different food matrices. SDS Page profiles of the samples after in vitro digestion and viscosities of the stomach digesta at different share rates were determined. Energy values were 62.11kcal/100 g, 70.27 kcal/100 g, 70.61 kcal/100 g, 71.20 kcal/100 g and 71.67 kcal/100 g for control, CMP added WP added, WP + SA added, and CMP + SA added yogurts respectively. The results of viscosity analysis showed that control yogurt had the lowest viscosity value and this was followed by CMP added, WP added, CMP + SA added and WP + SA added yogurts, respectively. Protein contents of the stomach and duodenal digests of the samples after subjected to two different in vitro digestion methods were changed between 5.34-5.91 mg protein / g sample and 16.93-19.75 mg protein /g of sample, respectively. Viscosity measurements of the stomach digests showed that CMP + SA added yogurt displayed the highest viscosity value in both in vitro digestion methods. There were differences between the protein profiles of the stomach and duodenal digests obtained by two different in vitro digestion methods ($p < 0.05$).

Keywords : caseinomacropptide, protein profile, whey protein, yogurt

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