High Potential Bioactive Peptides from Peptic and Tryptic Hydrolysate of Whey Proteins - Antioxidation and Growth Stimulation for Probiotics

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Purpose: The objective of my experiment is to identify the peptide of whey protein responsible for its antioxidation activity and to study the influence of the whey protein hydrolyastes on the growth stimulation of probiotics.

Experimentals: Whey Protein Isolate (WPI) with or without preheating at 90^{o}C/10 min, was hydrolysed for 24 hours with varied concentration (protein: enzyme ratio of 500:1 and 1000:1) of two enzymes, pepsin and trypsin. The proteins and peptides were separated according to their molecular weight and the degree of hydrolysis of major whey proteins was evaluated by SDS-PAGE and RP-HPLC using C18 column.

Results: The higher antioxidant activity found in tryptic hydrolysate of heat denatured WPI was separated by RP-HPLC and the fractions were measured for antioxidant activity with chemiluminescencer. A novel antioxidative peptide from bovine β-lactoglobulin, VAGTWYSLAMAASDISLLDAQSAPLR was identified to possess antioxidant activity of 96% at a concentration of 1 mg/ml. Further, the influence of supplementation of native WPI or its hydrolysates obtained with different concentration of enzymes was studied, *in vitro* on the growth of *bifidobacterium* and *Lactobacillus* species.