Evaluation of the Transport of Whey Proteins Hydrolysates Through a Monolayer of Caco-2 Cells

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Caco-2 cell was obtained from human colon adenocarcinoma and have the capacity to form monolayers, simulating the intestinal epithelium. The objective of this research was evaluate the transport of bovine milk whey proteins hydrolysates through a Caco-2 cell monolayer. Hydrolysates were produced adding commercial proteases together or separately in the bovine whey. Caco-2 cells monolayers was formed on inserts with collagen membrane; hydrolysates were added in the apical side of the filters and were recovered in the basal side. Analysis by HPLC showed the presence of low concentrations of amino acids in the basal side when the sample was non-hydrolyzed proteins (NH), expected for this sample. To the partially hydrolyzed proteins (PH) was observed the presence of leucine in greater concentration than NH sample and also the presence of tyrosine which was not detected in that sample. With the totally hydrolyzed proteins (TH) there was the preferred transport of some amino acids. Some other amino acids were not detected on the basal compartment even being added in high concentrations in the apical side of the insert demonstrating a selectivity exerted by the cells. These results clearly suggests that different previous treatments of the samples interfere in the transport and in the type of amino acids transported across the monolayer of Caco-2 cells. Comparing the amino acids transported, five amino acids of the PH hydrolysate were transported (Met, Ile, Leu, Tyr and Arg), but in the sample NH and TH the same amino acids were transported except tyrosine.

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