



EFFECTS OF WHEY PEPTIDE EXTRACT ON THE GROWTH OF PROBIOTICS AND GUT MICROBIOTA

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More and more biological activities of whey peptides have been found recently. However, no relevant study has proven the potential of whey peptides in the modulation of gut microbiota. The survival of many bacterial species inhabiting the large bowel depends essentially on the substrates made available to them, most of which come directly from the diet. Some of these substrates can be selectively considered as prebiotics - which are food ingredients that can stimulate beneficial bacteria such as lactobacilli or bifidobacteria growth in the colon. A recently emerging research area has focused on the recovery/synthesis and characterization of peptides with biological activity, their impact on human health and the manufacture of novel functional food ingredients. Thus, the major objective of this research work was to study the potential prebiotic activity of whey peptide extract (WPE) obtained via hydrolysis of whey proteins achieved by cardosins present in *Cynara cardunculus* extract, towards eventual incorporation in foods. To evaluate the effect of WPE on the modulation of gut microbiota in this diet-induced obesity model, Wistar rats fed either with a standard (St) or a high-fat (HF) diet. Quantified via 16S ribosomal RNA (rRNA) expression by quantitative PCR (qPCR), genera of beneficial bacteria (*Lactobacillus* spp. and *Bifidobacterium* spp.) and three main phyla (Firmicutes, Bacteroidetes and Actinobacteria), as well as the indicator associated with obesity, F/B ratio, were analyzed in rats' fecal samples. Results shows relative abundance of *Lactobacillus* spp., *Bifidobacterium* spp. and Bacteroidetes was significantly increased ($P < 0.05$) by WPE only in rats fed with a St diet. Consequently, the potential health-promoting effects of WPE through modulation of gut microbiota were demonstrated *in vivo*. Altogether, these findings highlight the possible intervention of WPE in a healthy life style, bringing associated benefits namely as gut microbiota enhancer.

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