

Effects of Brewer's Yeast Peptide Extract on the Growth of Probiotics and Gut Microbiota

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Abstract : Recently it has been recognized peptides from different food sources with biological activities. However, no relevant study has proven the potential of brewer yeast peptides in the modulation of gut microbiota. The importance of human intestinal microbiota in maintaining host health is well known. Probiotics, prebiotics and the combination of these two components, can contribute to support an adequate balance of the bacterial population in the human large intestine. 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. Moreover, conventional food can be used as vehicle to intake bioactive compounds that provide those health benefits and increase people well-being. In this way, the main objective of this work was to study the potential prebiotic activity of brewer yeast peptide extract (BYP) obtained via hydrolysis of yeast proteins by cardosins present in *Cynara cardunculus* extract for possible use as a functional ingredient. To evaluate the effect of BYP on the modulation of gut microbiota in diet-induced obesity model, Wistar rats were fed either with a standard or a high-fat 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) were assessed. Results showed relative abundance of *Lactobacillus* spp., *Bifidobacterium* spp. and Bacteroidetes was significantly increased ($P < 0.05$) by BYP. 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 BYP as gut microbiota enhancer, promoting healthy life style, and the incorporation in new food products, leads them bringing associated benefits endorsing a new trend in the improvement of new value-added food products.

Keywords : functional ingredients, gut microbiota, prebiotics, brewer yeast peptide extract

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