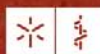


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Potential prebiotic effect of whey protein and spent brewer yeast hydrolysates by enzymes of *Cynara cardunculus* extract**Joana Odila Pereira, Maria Faria Amorim, Maria Manuela Pintado**

Escola Superior de Biotecnologia - Universidade Católica Portuguesa, Portugal

Biologically active peptides are of particular interest to food science and health since they have demonstrated beneficial physiological roles upon ingestion. These biopeptides can be released and/or activated *in vivo* during gastrointestinal digestion or otherwise via enzyme-mediated proteolysis throughout food processing. 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 non-digestible food ingredients that can stimulate beneficial bacteria such as lactobacilli or bifidobacteria growth in the colon. Thus, the major objective of this research work was to study the potential prebiotic activity of peptide extracts obtained via hydrolysis of whey proteins from a mixture of milk (cow, ewe and goat) and spent brewer yeast extracts achieved by cardosins present in *Cynara cardunculus* aqueous extract. The strains tested were probiotic strains viz. *Lactobacillus acidophilus* Ki and *Bifidobacterium lactis*Bb12 and Fructooligosaccharides were used as positive control of prebiotic activity. From whey protein hydrolysates two fractions were tested, the ultrafiltration permeate (PM >1000 Da and < 20000 Da) and a nano-permeate (<1000 Da). In the yeast extract two fractions were tested after hydrolysis procedure, the nano-retentate (>1000 Da) and nano-permeate (<1000 Da), both obtained from ultrafiltration permeate. The fractions from the different extracts were studied at various concentrations with or without glucose addition. All the extracts analyzed showed good prebiotic activity through the enhancement of growth of both probiotic strains, when in presence of a sugar source (glucose). In most of the cases the growth stimulation was even higher than Fructooligosaccharides. *Lactobacillus acidophilus* Ki was the bacteria further stimulated by these extracts, particularly when added ultrafiltration permeate of whey hydrolyzate (>1000 and >20000 Da). Incorporation of the extracts in media without glucose did not produce such good results, but the better activity was obtained for the ultrafiltration permeate of whey hydrolyzate (>1000 and >20000 Da); this result was expected since both extracts stimulate mainly the bacterial growth through the nitrogen compounds: peptides and aminoacids.