Studies on the Inhibition of Oxidative Damage to LDL and Cell DNA by Bovine Colostrum Whey Hydrolysates

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ABSTRACT

In this study bovine colostrums collected on the second day postpartum were used to isolate the whey, and then two enzymes, alcalase and flavourzyme, were used to hydrolyze the whey using two-stage method. The whey hydrolysates were finally fractionated by ultrafiltration with a 10 kDa molecular weight (MW) cut-off membrane. The inhibition of cell DNA damage and low density lipoprotein (LDL) oxidation by the samples, including whey hydrolysates, the hydrolysate fraction of MW>10 kDa and the hydrolysate fraction of MW 10 kDa did not promote DNA single-strand cleavage at any concentrations, but the hydrolysate fraction of MW 10 kDa did promote DNA single-strand cleavage with increasing concentration. The hydrolysate fraction of MW>10 kDa inhibited LDL oxidation, and both the hydrolysate fraction of MW>10 kDa and the hydrolysate fraction of MW 10 kDa inhibited LDL oxidation with increasing concentration.

Keywords : Bovine colostrums、Whey protein、Whey hydrolysates、Antioxidant、Oxidative damage


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