ASSOCIATIONS OF HUMAN MILK ANTIOXIDANT CAPACITY WITH CASEIN AND WHEY PROTEIN ARE AFFECTED BY PASTEURIZATION

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The antioxidant capacity of human milk (HM) might contribute to prevent oxidative stress in the newborn, especially in pre-terms. Furthermore, has a relatively high proportion of whey protein (WP), compared to casein. Peptides obtained from cow’s milk casein and WP hydrolysates present antioxidant activity. The aims of this study was to investigate associations of total antioxidant capacity (TAC) with casein and WP in HM (n=17; 13 colostrum and 4 mature milk) and to determine the effects of pasteurization in these associations. Casein and WP were determined by Lowry method, with or without precipitation at pH 4.6, and CAT was determined by the following assays: FRAP (Ferric ion reducing ability), TEAC (Trolox-equivalent antioxidant capacity) and ORAC (Oxygen Radical Absorbance Capacity). Associations between variables were investigated through Pearson correlation analyses. FRAP and ORAC were not correlated with the two protein fractions. TEAC was positively correlated with WP (r= 0.53; P=0.025) and casein (r= 0.54; P= 0.02) in the raw HM and with casein (r=0.50; P= 0.0353) in the pasteurized milk. Our results showed that TAC of human milk might be determined by casein and WP, and that this association persisted after pasteurization only for casein.

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