

P 37 Improving of cheese yield by using some functional food additives and ingredients

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The aim of this study was to improve the yield of white cheese produced from raw cow's milk by the addition of various functional food additives before clotting. For this purpose, modified corn starch (MCS), Na-caseinate (Na-C), guar gum (GG) and gum arabic (GA) were used in powdered mixture formulation. In study, the first group white cheese was produced with mixture of MCS + Na-C + GA additives and the second group white cheese was produced with MCS + Na-C + GG powders and the last group was control for comparing to other groups. The physicochemical, textural and sensorial properties of the white cheeses were analyzed in study. Cheeses were stored for a period of 90 days and the analysis were made in the 1st, 7th, 15th, 30th, 60th and 90th days. Physicochemical analysis included moisture, nitrogen, water soluble nitrogen, oil, ash, salt, acidity. Hardness, adhesiveness, springiness, cohesiveness, gumminess, chewiness and resilience values were analyzed in the texture profile analysis (TPA). The results of the physicochemical properties of samples were acceptable. The differences in the sensorial properties like appearance, taste, texture, tissue and overall acceptance were not significant ($p > 0.05$) statistically. Cheese produced with MCS + Na-C + GG powder mixture was harder ($p < 0.05$) than the others and also chewiness and gumminess properties of this cheese was higher ($p < 0.05$). As a result of this study, the actual yields of the white cheeses were increased 1.5% for two groups. The moisture adjusted yield was increased 1.0 and 0.7% in the first and second groups, respectively. The best results were observed in samples prepared with MCS + Na-C + GG addition and their sensory analysis were better than other samples.

P 38 *In vitro* digestion of beta glucan enriched pasta: Polysaccharide molecular characterization and antioxidant activity of bioaccessible fraction

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The (1→3-1→4) β -glucan is a linear polysaccharide endowed with a wide range of health benefits including lowering serum cholesterol, regulating blood glucose levels and conferring anti-cancer activities. For this reason there has been a growing interest in β -glucan enriched food. Mixing suitable amount of durum wheat flour and barley flour, it was possible to obtain 5% enriched β -glucan pasta endowed with excellent organoleptic properties. A simulated oral, gastric and small intestinal digestion was performed in order to assess the influence of pH and matrix enzyme degradation on stability and bioaccessibility of the polysaccharide. β -glucan was assayed in post oral, post gastric and post intestinal (PI) digesta. Water soluble fraction (bioaccessible) derived from PI ultracentrifugation was isolated and polysaccharide molecular weight was determined by HPLC-SEC. In comparison with β -glucan directly extracted from barley wheat ($M_w=144.313$, $P_d=1.31$) the polysaccharide present in bioaccessible fraction had a higher molecular weight ($M_w=251.233$, $P_d=1.15$). Bioaccessible antioxidant capacity was studied through ABTS cation radical decoloration and Folin assays. With respect to not enriched pasta, the bioaccessible fraction of the β -glucan enriched one showed an antioxidant capacity 34% higher and the total phenol contents was also significantly higher (16%). Thus, β -glucan enriched pasta is endowed with interesting health promoting properties.