

Immune Modulation and Reduction of Inflammatory Biomarkers by Bioactive Peptides from Whey Fermented with *Saccharomyces boulardii* in an Animal Model

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The study investigated the nutraceutical potential of whey fermented with *Saccharomyces boulardii*, emphasizing its effects on inflammatory and immunological responses in an animal model. Fermented whey was obtained through yeast activation and incubation at 30°C for 24 hours, followed by a 12-hour fermentation process, with subsequent centrifugation to remove microorganisms. In vivo experiments (CEUA/UDESC no. 3728250923) involved 15 female cats, divided into a Control group (8 animals) and a Treatment group (7 animals) that received fermented whey mixed with feed at a concentration of 0.59% for 20 days. Peptidomic analysis identified 715 peptides in digested fermented whey, with 15.21% exhibiting antioxidant potential. Anti-inflammatory predictions revealed a higher prevalence of high-confidence peptides. Blood analysis demonstrated a reduction in leukocytes (from $11.7 \times 10^3/\mu\text{L}$ to $6.31 \times 10^3/\mu\text{L}$), an increase in lymphocytes (from $3.73 \times 10^3/\mu\text{L}$ to $7.6 \times 10^3/\mu\text{L}$), and a decrease in ferritin (from 23.3 ng/mL to 6.3 ng/mL), indicating reduced inflammation. Albumin showed a slight improvement (from 2.34 to 2.50 g/dL), while C-reactive protein levels remained stable. The results indicate that peptides from fermented whey can modulate immune responses and decrease inflammatory markers, suggesting therapeutic potential for chronic inflammation and supporting its use as a functional food.