

DETERMINATION OF BIOACTIVE PROPERTIES OF WATER-SOLUBLE EXTRACTS FROM UF AND WHITE CHEESE DURING STORAGE PERIOD

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ABSTRACT

In this study, the bioactive properties of water-soluble peptides (WSP) in the ripening process of cheese produced from pasteurized cow's milk and ultrafiltered cow's milk using 2 different enzymes of microbial and animal origin were investigated. Antioxidant, ACE inhibitor and antimicrobial properties of WSP obtained from cheeses produced in 4 different ways as UF milk + microbial enzyme, UF milk + rennet, Pasteurized milk + microbial enzyme and Pasteurized milk + rennet were determined during the 3 month maturation period. In the antioxidant analysis of WSPs obtained at the end of the maturation period, by using ABTS method (10 µL sample volume), the % inhibition values were found to be 54,5% in the Beyaz cheese produced with the lowest microbial enzyme, while it was 29,18% by using the DPPH method. According to ABTS method, while the highest % inhibition effect was determined as 59,13% in UF cheese produced with microbial enzyme, this value was determined as 20.04% in DPPH method. This situation revealed that the results of DPPH and ABTS method analysis used in the determination of antioxidant activity differ from each other. The ACE inhibitory effect of WSPs was observed the lowest in the 0th month (19,47%) of UF cheese produced with rennet, and the highest in the 3rd month (70,46%) of the Beyaz cheese produced with rennet. It was determined that the ACE inhibitory effect increased depending on maturation. The antimicrobial effects of WSPs on *Salmonella typhi*, *Salmonella* Enteritidis, *Esherichia coli* DSM ATCC 10973, *E. coli* ATCC 95922 and *Staphylococcus aureus* ATCC 95923 were investigated. In studies carried out at 200 mg/ml concentration, The WSP of the 1st month of UF cheese produced with microbial enzyme showed the highest antimicrobial effect against *S. typhi*. It has been determined that WSPs of 1st month from Beyaz cheese produced with microbial enzyme have antimicrobial effects on *S. typhi*, *S. Enteritidis*, *E. coli* DSM ATCC 10973, *E. coli* ATCC 95922. In addition, it was determined that the WSPs of the 3rd month of Beyaz cheese produced with microbial enzyme showed antimicrobial effects on *S. typhi*. None of the obtained WSPs showed antimicrobial effect on *S. aureus* ATCC 95923.

Keywords: Water Soluble Peptides, Antimicrobial, Antioxidant, ACE inhibitory