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### **Effects of moderate electric fields on the chemical composition and microbial death kinetics of *Escherichia coli* and *Bacillus licheniformis* during pasteurization of some foodstuffs**

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In recent years, the world's food industry has increased the opportunities for exploiting electric techniques of food processing. Moderate electric fields (MEF) is one of these techniques having potential applications in food pasteurization. The aim of this work is to evaluate the effects of MEF Technology in cloudberry jam and goat milk chemical properties and to determine microbial death kinetics of *E. coli* (in goat milk) and *B. licheniformis* (in cloudberry jam). Liquid and gas chromatography, spectrophotometric measurements, and solid-phase microextraction (SPME) were some of the methods used in the chemical characterization of foodstuffs. In cloudberry jam treated by MEF, the results of some of the main parameters tested such as total sugar (47.4 g/100 g), ascorbic acid (2.8 g/100 g) and acidity (6.0 g/100 g - as citric acid) did not show significant differences as compared to the results of conventional Technology. In goat milk treated by MEF, the acidity (0.12% - as lactic acid), pH value (6.6) and total fatty acids in milk fat (59.8 g/100 g) were comparable to those found in milk treated by conventional processes. Free fatty acids were also detected and quantified in goat milk. In MEF treatments lower D and z values for *E. coli* ( $D_{60^{\circ}\text{C}} = 4.2$  min,  $D_{63^{\circ}\text{C}} = 1.9$  min,  $D_{65^{\circ}\text{C}} = 0.85$  min and  $z = 8.4^{\circ}\text{C}$ ) were obtained as compared to conventional treatment ( $D_{63^{\circ}\text{C}} = 3.9$  min,  $D_{65^{\circ}\text{C}} = 3.5$  min,  $D_{75^{\circ}\text{C}} = 1.5$  min and  $z = 24.2^{\circ}\text{C}$ ). The death kinetics for *B. licheniformis* was also studied under both types of heat treatment with similar results. The results indicate that MEF provides products with chemical properties similar to those obtained by conventional treatments and quicker microbial death kinetics. This opens the perspective for shorter, less aggressive treatments.