Water mobility and distribution in cream cheeses with variations in fat (4, 15, and 26%), added salt (0, 0.625, and 1.25%), and pH (4.2, 4.7, and 5.2) were studied using H-1 NMR relaxometry. The cheese samples were inoculated with a mixture of Listeria innocua, Escherichia coli 0157 and Staphylococcus aureus, and partial least-squares regression revealed that H-1 T-2 relaxation decay data were able to explain a large part of the variation in the survival of E. coli O157 (64-83%). However, the predictions of L. innocua and S. aureus survival were strongly dependent on the fat/water content of the samples. Consequently, the present results indicate that NMR relaxometry is a promising technique for predicting the survival of these bacteria; however, the characteristics of the sample matrix are substantial.

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