

572e High Pressure Destruction Kinetics of Psychrotrophic Microorganisms in Meat

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There is considerable interest in food industry sector for high pressure processing (HPP) of low-acid foods. Unless combined with higher temperatures these processes will be insufficient to kill microbial spores, and hence such treatment can only be used for pasteurization treatment for pathogen control together with refrigerated storage for spoilage control to give some shelf life extension. This work dealt with the proper procedures to measure pressure sensitivity of bacteria in a meat matrix. Experiments were carried out on 4 meat spoilage bacteria, namely *Brochothryx thermosphacta*, *Lactobacillus* sp, *Carnobacterium divergens*, and *Serratia liquefaciens*. All strains were originally isolated from refrigerated meat and were therefore psychrotrophic. A first series of experiments was set out to determine the influence of the inoculation procedure. A second series of experiments was intended to determine the optimal enumeration technique to measure the pressure killing effect on bacteria. The results of the pressure treatments at 20°C yielded the following sensitivity data for *B. thermosphacta* and *S. liquefaciens*: presence of a pulse effect (PE) at the beginning of the treatment and: D (300 MPa) values of 13.3 min (Bt) and 12.2 min (Sl), D (400 MPa) values of 9.9 min (Bt) and 9.6 min (Sl), D (500 MPa) values of 6.9 (Bt) and 4.0 min (Sl), and D (600 MPa) values of 4.1 min (Bt) and 2.8 min (Sl), with corresponding to z values of 697 MPa (Bt) and 437 MPa (Sl), indicating *B. thermosphacta* to be more pressure resistant than *S. liquefaciens*.