

Pressure Resistance Screening of Group I *Clostridium Botulinum* Spores at High Temperature High Pressure Processing Conditions

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Twelve strains of *Clostridium botulinum* Group I spores suspended in phosphate buffer (0.1M) at approximately 10^7 CFU/ml concentration were subjected to high pressure treatments at different pressures (800 and 900 MPa), temperatures (90 and 100°C) and times (5 to 15 min). The treatments were chosen to have a wide range of pressure severity to be able to discriminate the spore strains for their pressure resistance. An insulated test chamber was used to achieve temperature stability during treatment. Preliminary studies showed the need for an 8 day anaerobic incubation for enumeration. Strains PA9608B, HO9504A and CK2-A had a higher pressure resistance among 12 strains while Strain 62A was completely inactivated by these combinations. The D values of the more resistant were in the 1.8-0.66 min range at 900 MPa and 100°C treatment. The temperature sensitivity parameter (Z_P value) at 900 MPa ranged from 10 to 16°C, and pressure sensitivity (Z_T value) at different temperatures ranged from 340-760 MPa. The strain PA9805B produced the most resistant spores that had higher estimated Z_P value (16.0°C) and Z_T value (470 MPa)