COMBINED EFFECT OF HIGH HYDROSTATIC PRESSURE (HHP) PROCESSING AND SODIUM LACTATE ADDITION ON QUALITY OF CURED BEEF CARPACCIO

Yanina Barrio\textsuperscript{1,2}, Romina Contarino\textsuperscript{2}, Claudio Sanow\textsuperscript{3}, Ana María Sancho\textsuperscript{3}, Martín Palladino\textsuperscript{3}, Gabriela Grigioni\textsuperscript{1,3}, Marcelo Masana\textsuperscript{3}, Sergio R. Vaudagna\textsuperscript{1,2,3}. \textsuperscript{1}Consejo Nacional de Investigaciones Científicas y Técnicas (CONICET), Argentina. \textsuperscript{2}Departamento de Biotecnología y Tecnología Alimentaria, Facultad de Ingeniería y Ciencias Exactas, Universidad Argentina de la Empresa, Argentina. \textsuperscript{3}Instituto Tecnología de Alimentos, CIA, Instituto Nacional de Tecnología Agropecuaria (INTA), CC77 CP: B1708WAB Morón, Argentina.

The application of HHP at refrigeration temperatures to frozen samples can enhance the appearance of pressurized red meats. However, these treatments may result less effective to inactivate indigenous microorganisms. Previous studies have reported the efficacy of sodium lactate when combined with HHP on bacterial inactivation in some foodstuffs. The aim of this study was to evaluate the combined effect of sodium lactate addition and HHP treatment on physicochemical properties and hygienic quality of cured beef carpaccio.

A factorial randomized design was applied with sodium lactate (0, 1 and 3\%) and pressure (0.1, 400 and 600\MPa) as main factors. Bovine Semitendinosus muscles were cured by tumbling, vacuum packed and stored at 1\(^\circ\)C for 12 days. Then muscles were frozen, sliced and vacuum packed. Frozen carpaccio was pressurized at 400 or 600\MPa for 5\text{min} at 5\(^\circ\)C.

No significant (p<0.05) interaction of pressure and lactate was observed for pH, shear force and work of shearing. However, significantly higher values (p<0.05) of these parameters were found in pressurized samples, being they independent of pressure level. HHP treatment increased expressible moisture while lactate addition decreased it significantly (p<0.05). It was observed a significant (p<0.05) interaction of pressure and lactate on chromatic parameters (CIEL*a*b*), excluding b*. The addition of lactate and freezing counteract the HHP effect upon chromatic parameters. In the curing stage, higher lactate concentration induces lower counts for aerobic total count at 30\(^\circ\)C, lactic acid bacteria and psychrotrophs. For all treatments, microbial lethality was dependent of pressure level.