

Title Effect of ultrasound treatment on water holding properties and microstructure of beef (*m. semimembranosus*) during ageing

Author Joanna Stadnik, Zbigniew J. Dolatowski and Hanna M. Baranowska

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Abstract

The purpose of this study was to investigate the structural, water holding capacity (WHC) and water compartmentalization changes in meat samples sonicated at 24 h after slaughter. Analyses were carried out at the following fixed intervals *post mortem*: 24, 48, 72 and 96 h on the beef muscle (*m. semimembranosus*) taken from carcasses chilled at 2 °C. Muscle was divided into eight parts. Four of them were subjected to ultrasound treatment within 2 min with frequency of 45 kHz (sample S). The other four were regarded as control samples. Water compartmentalization was assessed by NMR relaxation time measurements. Water holding capacity as well as acidity of meat was measured. More advanced *post mortem* changes in sonicated sample than in the control sample support the hypothesis that application of ultrasound treatment can cause acceleration of the ageing process.