



ASPA 24th Congress Book of Abstract

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Guest Editors

Roberto Mantovani (Coordinator), Alessio Cecchinato, Giovanni Bittante, Maurizio Ramanzin, Lucia Bailoni, Mauro Penasa, Flaviana Gottardo, Sara Pegolo, Giorgio Marchesini, Rebecca Ricci, Cristina Sartori, Marco Cullere, Marco Birolo, Severino Segato, Valentina Bonfatti, Marta Brscic, Luigi Gallo, Stefano Schiavon, Franco Tagliapietra

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of Wooden Breast meat. For this purpose, a total of 48 P. major muscles have been selected from the same flock of Ross 308 chickens (males, 48 d of age, 2.8 kg at slaughter), packaged under vacuum, and divided into 4 experimental groups ($n = 12/\text{each}$): NORM (unaffected muscles), WB (muscles affected by Wooden Breast myopathy), NORM-T and WB-T (unaffected and affected muscles, respectively, subjected to LFU treatment). LFU treatment was performed at 24 kHz, 300 W for 40 min at $4 \pm 1^\circ\text{C}$. Meat colour, pH, water holding capacity, protein denaturation enthalpy (measured through Differential Scanning Calorimetry) as well as 40% compression force were assessed immediately after the treatment (T0) and after 5 (T1) and 10 (T2) days of storage ($2-4^\circ\text{C}$). Overall, pH, colour and water holding capacity of WB muscles were not affected by LFU treatment, while NORM-T muscles showed significantly higher lightness, yellowness (at T0, $p < .01$) and drip loss values (at T1, $p < .05$) if compared to their untreated counterparts. As concern texture, a tendency ($p = .07$) has been observed after 10 days of storage, with WB-T showing lower compression forces if compared to WB (9.2 vs. 11.9 kg), while LFU did not affect the textural traits of NORM-T muscles. Accordingly, at T2, total protein denaturation enthalpy was found to be significantly reduced in WB-T samples if compared to WB (2.50 vs. 2.78 J/g, $p < .05$). In this regard, the contribution of stromal proteins (namely collagen) to the total denaturation enthalpy was found to be significantly lowered in the WB-T group (-20.6% , $p < .001$). Taken together, these results suggest that after 10 days of storage LFU treatment might have tenderized Wooden Breast meat by weakening its connective tissue. However, further treatment conditions should be tested to achieve a greater and faster tenderization process, without affecting neither the appearance nor the water holding capacity of meat.

SESSION 12 – FOOD PRODUCTION AND PROCESSING

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Innovative approach for the tenderization of Wooden Breast meat in broilers

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Wooden Breast is a well-known myopathy occurring in fast-growing broilers and characterized by an extreme hardening of the *Pectoralis major* muscle, which is usually downgraded due to its unwilling visual aspect and impaired technological properties. In this regard, the application of innovative techniques might represent a valuable tool to improve textural traits of Wooden Breast meat and mitigate the economic losses related to the downgrading of affected muscles. Thus, this study aimed at exploring the effect of Low-Frequency Ultrasounds (LFU) on the tenderization