Mechanical strength of myofibrillar and connective tissue of Italian Mediterranean Buffalo meat

content, that was lower (5.8 ± 0.8 g·kg^{-1}) in SC samples compared to literature grass values (25 g·kg^{-1}). Total Viable Count was scant and Salmonella was never present. Salad crops are a prospective feed ingredient for ruminants' diets, albeit a full assessment of their potential requires further investigation.

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SENSORY AND INSTRUMENTAL ORGANOLEPTIC PROPERTIES

P168

Mechanical strength of myofibrillar and connective tissue of Italian Mediterranean Buffalo meat

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Meat tenderness, or toughness, is a complex property determined mainly by the connective tissues and the muscle fibres. The amount of collagen, as well as the density and type of cross-links between collagen fibrils are directly linked to meat toughness. The aim of this study was to investigate the effect of sex and ageing time on the mechanical strength of Italian Mediterranean Buffalo meat using the Warner-Bratzler shear force (WBsf) test and the Texture Profile Analysis (TPA), which are the classic mechanical methods for estimating meat tenderness. Samples of *Longissimus thoracis* muscle, from 6 young males and 6 spent females (17 ± 1 and 47 ± 18 months old, respectively), were aged at 4 °C for 7 and 14 days. At each ageing time, meat samples were analysed for WBsf on raw and cooked meat, and for TPA on raw meat. WBsf of raw meat gives an estimation of the connective tissue toughness, whereas WBsf of cooked meat largely reflects myofibrillar toughness. For WBsf of cooked meat, the meat was vacuum packed and cooked in a water bath at 75 °C until the internal temperature reached 70 °C. In WBsf test, tenderness was measured as the maximum force required to shear 1 cm^2 cross-section cores. In TPA test, samples were compressed twice at 20% and 80% of their original height. Hardness (H, maximum force required to compress the sample) at low and high strain values were used to measure the strength of the myofibrillar and connective tissue, respectively. Data were analysed by GLM procedure considering sex and ageing time as factors. As regarding connective tissue, no significant differences between sexes were observed in WBsf values of raw meat and H at 80%, probably also due to the confounding effect of age at slaughter. Similarly, no significant differences were detected for the two parameters during ageing. Young males' meat was found to have significantly higher cooking loss percentages than that of spent females (26% vs. 22%; $p = .004$). Concerning myofibrillar tissue, no significant differences between sexes were observed for WBsf values of cooked meat and H at 20%. Instead, ageing significantly reduced only the WBsf values of cooked meat (47.32 vs. 34.15 N; $p < .001$) that is an estimation of myofibrillar toughness. The results indicate that H at 80% showed a lower coefficient of variation than that of WBsf of raw meat, and WBsf on cooked meat are more suitable to estimate the connective and myofibrillar tissue strength of meat, respectively.

P169

Muscle pigmentation in rainbow trout fed novel protein sources from microalgae and crustaceans: the image analysis approach

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The pink-red pigmentation of rainbow trout (*Oncorhynchus mykiss*) fillet determines consumer choice and economic value of the products. The main responsible for salmonid muscle pigmentation is astaxanthin, that is provided with diet, primarily as synthetic astaxanthin. However, the high costs of synthetic pigments and the consumers' concerns about their use in animal feeds are leading the research for natural carotenoids.
The pattern of fillet pigmentation was assessed in rainbow trout (*Oncorhynchus mykiss*, $n = 63$, mean weight 260.5 g) fed for 15 weeks with six (in triplicate) iso-proteic (42%) and iso-lipidic (24%) pelleted diets deprived of fish meal where 10% of vegetable protein blend was replaced by microalgae dried biomass (*Arthrospira platensis,* AP, *Tetraselmis suecica,* TS, a mix of *Tisochrysis lutea* and *T. suecica,* MA) or red swamp crayfish (*Procambarus clarkia*, RC) meal. A commercial diet (CO, 3 replicates) was used in the trial. The feeding trial was carried out at the Edmund Mach Foundation (San Michele all'Adige, IT). All procedures involving fish