severity of disease caused by these strains may be no less than that caused by recognized "enterohaemorrhagic" STEC serogroups such as O157 and O111. More widespread use of PCR- or enzyme-linked immunosorbent assay-based screening tests for the presence of STEC of any serogroup in animal samples will undoubtedly result in increased detection of similar non-O157 outbreaks in the future. This will provide more accurate data on the epidemiology of human STEC disease.

O174

Effect of lactic acid bacteria on the quality of beef hamburger under different storage conditions

Paola Sechi[1], Maria F. Iulietto[1], Salvatore Barbera[2], Luca Grispoldi[1], Margherita Ceccarelli[1], Filippo Bertero[1], Serena Franceschini[1], Beniamino T. Cenci-Goga[1]

[1]*Dipartimento di Medicina Veterinaria, University of Perugia, Italy*
[2]*Dipartimento di Scienze Agrarie, Forestali e Alimentari, University of Torino, Italy*
Contact: paolasechi@supereva.it

Meat products and meat preparations are very sensitive to external factors such as temperature and are good substrates for microbial growth and biochemical processes that occur during storage. The aim of this work was to study the effect of a selected lactic acid bacteria formulation (LAB) on the microbiological characteristics and colour of beef hamburgers stored at different temperatures. Two batches of hamburgers (average weight of about 100g) were prepared: one with the addition of LAB (*Lactococcus lactis* ssp. *lactis*, strain 340; *L. lactis* ssp. *lactis*, strain 16; *Lactobacillus casei* ssp. *casei*, strain 208 and *Enterococcus faecium* strain 614 in a ratio lactococci:lactobacilli:enterococci of 2:1:1; level of inoculum 10^7 cfu g^{-1}) and one without (NO LAB), in three replicates done in three different days. For each batch, a subset of samples was stored under proper conditions (4 °C) and the other at 40 °C (temperature abuse conditions, to mimic inadequate storage conditions after purchase by consumer) both for 5 hours. After 5 hours, each subset was further divided into two subgroups: one maintained at 4 °C and the other at 10 °C. All hamburgers were evaluated on day-0, day-1, day-3, and day-5 for the following microbiological parameters (*Staphylococcus* spp., enterococci, *Lactococcus* spp., *Lactobacillus* spp., total mesophilic aerobes, *Pseudomonas* spp., total coliforms) according to standard methods; moreover colorimetric measurements were performed with Colorimeter - Digital Color Picker for iOS 10, under a 6500K light, with the CIELAB system, by taking three readings for each sample. The arithmetic means within each sampling was computed, subsequently all data (geometric mean for microbiological data) were elaborated with GraphPad InStat, 3.0b and GraphPad Prism 6.0d for Mac OS X. Two way analysis of variance (ANOVA) followed by the Tukey's multiple comparisons test was performed. On day-5, all batches with LAB kept at abuse temperature and stored at 4 °C had a higher blue-yellow, green-red and lightness coordinates compared to the batches made without LAB maintained at the same conditions. On day-5 *Pseudomonas* spp. (PS103) counts were significant lower ($p<.05$) in all batches made with LAB; *Staphylococcus* spp. (BP) counts were significant lower ($p<.05$) in batches made with LAB in abuse conditions.
In conclusion, the application of the proposed LAB formulation maintains hamburgers quality standards and can be a potential tool to increase their shelf-life.

O175

Former food products safety: stereomicroscopy and computer vision for evaluation of packaging remnants contamination

Marco Tretola[1], Ambra Di Rosa[2], Matteo Ottoboni[1], Valentina Caprarulo[1], Carlotta Giromini[1], Francesco Leone[2], Vittorio Dell'Orto[1], Vincenzo Chiofalo[2], Luciano Pinotti[1]

[1]*Dipartimento di Scienze Veterinarie per la Salute, la Produzione Animale la Sicurezza Alimentare, University of Milano, Italy.*
[2]*Dipartimento di Scienze Veterinarie, University of Messina, Italy.*
Contact: marco.tretola@unimi.it

Valorisation of former foodstuffs products (FFP) as feed ingredients is part of a long-term strategy for sustainability. Processing methods to convert FFP in to feed ingredients do not usually include packaging materials pre-removal. Feed processors routinely remove the packaging from surplus food mechanically. Although, the treatment in the plant removes most of the packaging, small amounts of wrapping materials can remain in the resulting feed. In this respect, the aim of this study was to investigate the safety features of selected FFP intended for animal nutrition produced from different confectionery products. In six FFP samples, both mash and pelleted, the presence of undesired ingredients which can be identified as remnants of packaging materials has been evaluated by two different methods. The first analysis has been done by stereomicroscopy, according to published methods, based on separation of every particle that is not native to the matrix by bare eye examination. In the second one, stereomicroscopy coupled with a computer vision system (IRIS Visual Analyzer VA400), has been tested in order to evaluate the presence/absence of packaging remnants in feed materials. Results obtained have been presented as percentage of