

Technical Summaries

149: AMSA MEAT SCIENCE LEXICON

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Objectives: The Meat Science Lexicon was developed by AMSA to fill a void recently observed by various AMSA members and associated meat industry organizations. These included the observations that various health and nutrition organizations (e.g., IARC) have had great difficulty defining terms like 'red and white' meat and 'processed' meat. Consequently, there seemed to be a void in the understanding of meat science terms that could lead to future confusion in such research especially for consumers when trying to interpret dietary information.

Materials and Methods: A committee of ten AMSA members made up of professional and emeriti members was created in the early spring of 2016 to develop such a lexicon. Through the use of several face-to-face meetings, numerous conference calls, and with meetings with meat industry groups, the committee developed the lexicon.

Results: The lexicon defines several of the more difficult terms currently being used (red & white meat and processed meat) while also creating a rather complete taxonomic system of organizing meat and meat products. The document also includes a glossary of popular meat science terms that are used in the text of the Lexicon itself. The finished journal article has been submitted for publication in the AMSA Meat & Muscle Biology Journal.

Conclusion: The hope is that this new Meat Science Lexicon will be a starting place to use for the education of not only meat science professionals but also researchers involved in nutrition, medical, and cancer research to illustrate the diversity of consumer products created by the meat industry and that these cannot simply be described by a few simple terms.

Keywords: MEAT, MEAT SCIENCE LEXICON, OFFAL, PROCESSED MEAT, RED AND WHITE MEAT

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150: EFFICACY OF ROSEMARY AND GREEN TEA EXTRACTS AS CLEAN LABEL ANTIOXIDANTS IN DRY-FERMENTED SAUSAGES

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Objectives: Increased interest in natural cure ingredients is largely due to rising consumer demand for processed meats with clean label solutions. Maintaining color and flavor stability is critical in dry-fermented type sausages, which are highly susceptible to oxidative changes especially when sliced and stored. Rosemary and green tea extracts are naturally-sourced antioxidants that could mitigate such product quality issues while providing consumer-friendly labels. This research evaluated the effect of adding rosemary and green tea extracts on the keeping quality and shelf life of pepperoni formulations using natural cure or conventional cure.

Materials and Methods: Fresh pork shoulders (16% fat) were deboned and fine ground through a 0.32 cm plate. A base formulation of 2% salt, 1% dextrose, 1% water, oleoresin paprika and commercial starter culture was used. Treatment effects include: (i) Conventional Cure (150 ppm sodium nitrite; 400 ppm ascorbic acid; 60 ppm BHA/BHT; CC), (ii) Natural Cure (60 ppm sodium nitrite equivalent from pre-converted vegetable juice powder, PVJP; 400 ppm ascorbic acid from cherry powder; NC), (iii) Natural Cure + 0.2% Herbalox[®] (Rosemary Extract; NCR), (iv) Natural Cure + 0.2% Duralox[®] (Rosemary/Green Tea Extracts blend; NCRG), (v) Natural Cure (150 ppm sodium nitrite from PVJP) + 0.2% Duralox[®] (Rosemary/Green Tea Extracts blend; NCFNRG). Pepperoni formulations were stuffed, fermented (43-66°C, RH 65-85%, 26 h), dried down (20-21°C, MPR 2.0:1, pH 4.8), sliced, packed under vacuum or high oxygen modified atmosphere (80% O₂/20% CO₂, HiOx-MAP, to enhance oxidation) and stored (3±1°C, away from light) until analyses. Instrumental color, visual evaluation, secondary oxidation products (hexanal, pentanal, heptanal), gas composition and informal sensory evaluation were determined every 7 days (d) over a period of 28 d (HiOx-MAP) and 31 d (vacuum packaged). This study was replicated two times and statistical analysis was performed using Analysis of Variance (ANOVA, P < 0.05).

Results: HiOx-MAP pepperonis with NCFNRG, NCRG and NCR showed higher (P < 0.05) *CIE* a* (redness) and chroma (saturation) values compared to CC and NC alone after 28 d of storage indicating slower red color deterioration. Redness and chroma values were also greater (P < 0.05) in vacuum packaged NCR pepperonis throughout 31 d of refrigerated storage. The addition of rosemary and green tea extracts to HiOx-MAP sliced pepperoni samples improved (P < 0.05) oxidative stability as evidenced by lower concentrations of secondary oxidation products and were not different from CC after 28 d of storage. Results of secondary oxidation products in vacuum packaged pepperonis have shown that NCR, NCRG and NCFNRG could significantly (P < 0.05) inhibit oxidation compared to NC alone. Informal sensory evaluation results showed all treatments to be acceptable across all storage periods except for NC alone where oxidized notes were detected after 7 d in HiOx-MAP and 31 d in vacuum packaged conditions.

Conclusion: This research shows the antioxidative efficacy of rosemary and green tea extracts in dry-fermented sausages by maintaining their color life and inhibiting oxidation during storage equal to BHA/BHT. It provides the meat industry with a highly effective alternative to replace synthetic preservatives so processors can meet consumer demand for clean label products without compromising product shelf-life and quality.

Keywords: Clean label, Green tea, Pepperoni, Rosemary