Poultry Science
94(E-Supplement 1)

Poultry Science Association
104th Annual Meeting
Abstracts

Presented

July 27–30, 2015
Louisville, Kentucky

Also contains abstracts from 2015 International Poultry Scientific Forum
January 26-27, 2015
ASSOCIATE EDITORS (2014–2015)


Poultry Science® (ISSN 0032-5791) is published 12 times per year (monthly). Periodicals Postage Paid at Cary, NC, and additional mailing offices. POSTMASTER: Send address changes to Poultry Science, Journals Customer Service Department, Oxford University Press, 2001 Evans Road, Cary, NC 27513-2009. Subscription information: Annually for North America, $613 (electronic), $675 (print), or $708 (electronic and print). Annually for Rest of World, £395/€486 (electronic), £434/€534 (print), or £457/€562 (electronic and print); single copies are $45. All inquiries about subscriptions should be sent to Journals Customer Service Department, Oxford Journals, Great Clarendon Street, Oxford OX2 6DP, UK, Tel: +44 (0) 1865-35-3907, e-mail: jnlscust.serv@oup.com. In the Americas, please contact Journals Customer Service Department, Oxford Journals, Great Clarendon Street, Oxford OX2 6DP, UK, Tel: +44 (0) 1865-35-3907, e-mail: jnlscust.serv@oup.com. The PSA membership fee for individuals is $120 and includes electronic access to Poultry Science. A print subscription for PSA members is available for $80 (US) or $107 (Rest of World). All inquiries about membership should be sent to Poultry Science Association Inc., 1800 S. Oak Street, Suite 100, Champaign, IL 61820-6974, Tel: 217-356-5285, e-mail: psa@assocqchq.org. Claims: Publisher must be notified of claims within four months of dispatch/order date (whichever is later). Subscriptions in the EEC may be subject to European VAT. Claims should be made to Poultry Science, Journals Customer Service Department, Oxford University Press, 2001 Evans Road, Cary, NC 27513, Tel: 800-852-7323 (toll-free in USA/Canada) or 919-677-0977, e-mail: jnlorders@oup.com.

# Abstracts of the
Gaylord National Resort & Convention Center, National Harbor, Maryland
Poultry Science Association
Annual Meeting

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The effects of dietary supplementation of \( \alpha \)-methionine and 2-hydroxy-4-(methylthio) butanoic acid (HMTBa) on broiler meat quality. Ji Yang Fang\(^1\), Gerardo Casco\(^2\), Rocky Latham\(^3\), Jason Lee\(^2\), Sriperm Sriper\(^1\), Rob Shirley\(^3\), and Christine Alvarado\(^1,2\).

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The objective of this study was to define the effect of digestible total sulfur amino acid (dTSAAn) levels on meat quality. In a basal diet that contained a digestible lysine level of 0.90%, \( \alpha \)-Met was supplemented into a basal diet at 0, 0.197, or 0.395%; this resulted in dTSAAn levels of 0.491, 0.687, and 0.882%. Supplementing HMTBa into the basal diet at 0.222%, a dTSAAn of 0.687% was achieved. The 4 respective treatments were fed to male Cobb 500 × MX broilers from 35 to 49 d of age (13 replicate pens/treatment; 21 birds/pen). From each treatment, 6 birds per replicate were slaughtered and deboned on d 50 (n = 312). Boneless and skinless breasts were measured for drip loss (DL), cook loss (CL), color (L*, a*, b*), pH, and water holding capacity (WHC). In addition, DL and CL were determined on skinless, bone-in thigh meat. All data were analyzed using ANOVA, with LSMeans set at a \( P \)-value of < 0.05. While increasing the level of dTSAAn did not affect incidence of woody breast \( (P > 0.05) \), samples that had an incidence of “woody breast” were included in the data analysis because it has a significant effect \( (P < 0.05) \) on meat quality measurements (breast meat DL and CL). WHC was significantly higher for the dl-Met treatments, feeding 0.687% dTSAAn resulted in the lowest L* value when compared with the dTSAAn treatments of 0.491% \( (P < 0.05) \) and 0.882% \( (P > 0.05) \). WHC was significantly higher for the dTSAAn treatments of 0.882% and 0.687%. No significant difference was found in the meat quality measurements among the 3 dTSAAn levels. No significant difference in DL, CL, color, and pH was identified between the 2 methionine sources, dl-Met and HMTBa at 0.687% dTSAAn. In conclusion, supplementing either source of methionine at a dTSAAn level of 0.687% resulted in breast meat with a lower L* value (darker color meat) and an overall superior meat quality.

Key Words: dl-Met, HMTBa, meat quality, woody breast

Hydroxy-selenomethionine contributes to improve color stability of turkey meat. Mickaël Briens\(^*1\), Marion Faure\(^2\), Florian Coulignon\(^1\), Jean Garet\(^3\), Thierry Maucotel\(^1\), Nathalie Tommasino\(^3\), Gatelier Philippe\(^2\), Denis Durand\(^2\), Pierre-André Geraert\(^1\), and Yves Mercier\(^1\).

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Selenium (Se) is a trace element involved in the cellular Redox regulation and is active through selenoproteins, such as, glutathione peroxidases, thioredoxin reductases or methionine sulfoxide reductase B. The present study aimed to evaluate the effect of hydroxy-selenomethionine (HMSeBA) on the color stability of turkey red meat in standard packaging conditions. A total of 72 male turkeys (Grade Maker), 83 d old, were divided into 2 treatments as follow: a control diet (20 mg/kg of vitamin E and 0.3 mg/kg of Se from sodium selenite) and a test diet (control diet supplemented with 0.2 mg/kg of Se from HMSeBA). After 4 wk of dietary supplementation, thigh meat parts were processed the day after animal slaughtering. Enzymatic activities of catalase (CAT), superoxide dismutase (SOD) and glutathione peroxidase (GPx) were measured as well as vitamin A and E contents, pHu, glycolytic potentials and iron (free and heminic) content. The meat malondihaldehyde (MDA) and protein carbonyl contents were measured at 8 and 13 d after slaughter. A visual score was daily attributed to the meat portions from 1 (no discoloration) to 4 (at least 1/3 of meat discolored) during 13 d. A score above 3 indicated a non-saleable product. The meat GPx activity was higher \( (P < 0.05) \) for the test group compared with control. The CAT activity, vitamin A, E and iron contents were not affected by the diets. After 13 d of storage, meat from test group had lower MDA content compared with control \( (P < 0.05) \), but the protein carbonyl content was not affected by dietary treatments. The mean visual score was lower \( (P < 0.05) \) for the test group compared with control group at 8 and 13 d of storage. Thus, on a storage period of 15 d, HMSeBA enabled to slow down discoloration process. It resulted in a significant improvement of visual score at d 10, corresponding to an extra day at higher quality grade. Those results indicated a positive effect of HMSeBA supplementation in turkey diet to contribute to improve meat color stability in standard storage conditions.

Key Words: selenium, hydroxy-selenomethionine, turkey meat quality

Effect of onion extract on oxidative stability and physico-chemical and sensory properties of marinated broiler meat during refrigerated storage. Olubunmi O. Oluosila\(^*\), Kehinde A. Tella, and Olusegun D. Oshibanjo, University of Ibadan, Ibadan, Oyo State, Nigeria.

Onions are consumed for their flavor and health benefits. These beneficial properties seem to strongly relate to the high content of sulfur compounds and flavonoids, which act as antioxidants, antibiotics, and anticancerogens. This study investigated the antioxidative effect of onion extracts on quality and sensory properties of broiler meat as affected by refrigerator storage. Fresh average-sized white onion bulbs \( (0.58) \) were obtained, peeled, washed, chopped, and oven-dried at 40°C until constant weight was reached. Then, 500 mL of methanol was used to soak 100 g of the oven-dried onion for 24 h. Twelve broiler chicken \( (1.5 ± 0.2\) kg live weight of 56 d age) were obtained, and 800 g of the breast muscle was marinated in brine solution and onion extract. The marinade consisted of 16 mLs of onion extracts and 14 g of table salt added to 4 L of water. Marinated solution was kept at 4°C before breast meats were immersed. Marinated meat was pan fried to an internal temperature of \( 77°C ± 3°C \) for 15 min after 11hrs of marination and committed to completely randomized design. Moisture content was significantly high on the 4th day. Proximate composition increased with days of storage with d 2 having the highest mean value (31.88%). Days 2 and 4 had the same percentage of ether extract. pH was significantly high on d 2 having the highest mean value (31.88%). Yeast, Mold and Bacteria were not recorded on the first day but on the 4th day. Proximate composition increased with days of storage with d 2 having the highest mean value (31.88%). Days 2 and 4 had the same percentage of ether extract. pH was significantly high on the 4th day. Proximate composition increased with days of storage with d 2 having the highest mean value (31.88%). Days 2 and 4 had the same percentage of ether extract. pH was significantly high on the 4th day.

Key Words: Onion extract, broiler breast meat, physico-chemical properties

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