

Occurrence of white striping under commercial conditions and its impact on breast meat quality in broiler chickens

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ABSTRACT The aims of this study were to evaluate the incidence of white striping (WS) under commercial conditions and assess its effect on some quality traits in broiler breast fillets. In the first experiment, occurrence of WS (absence = normal; presence classified in 2 levels as moderate or severe) was assessed in a major commercial processing plant on 28,000 breast fillets (pectoralis major muscles) chosen at random from 56 flocks of broilers processed at 45 to 54 d of age. In the second experiment, 153 fillets were selected based on WS degree (normal, moderate, or severe) and used to assess ultimate pH, color, drip loss, cook loss, and Allo-Kramer-shear force on raw meat as well to determine marinade uptake, purge loss, cook loss, total yield, and Allo-Kramer-shear force after tumbling with a 15% (wt/wt) solution containing sodium tripolyphosphate (2.3%) and sodium chloride (7.6%). The total incidence of white striped breast fillets was 12.0% (8.9 and 3.1% in moderate and severe degree, respectively). Consid-

ering the effect of genotype, high-breast yield hybrids exhibited a higher overall incidence of WS compared with standard breast yield birds (15.2 vs. 10.0%; $P \leq 0.001$). Severe fillets showed higher pH than moderate and normal groups (5.95 vs. 5.88 and 5.86; $P \leq 0.05$). Fillets with severe and moderate WS also exhibited lower marinade uptake compared with normal fillets (7.92 vs. 10.97 vs. 12.67%; $P \leq 0.05$). Moreover, cook losses increased as the degree of WS increased from normal to severe groups in both raw (21.27 vs. 23.20 vs. 26.74%; $P \leq 0.05$) and marinated meat (14.59 and 14.84 vs. 15.93%; $P \leq 0.05$). Finally, nonmarinated fillets with severe striping had lower Allo-Kramer-shear force compared with moderate and normal ones (3.69 vs. 4.41 and 4.91 kg/g; $P \leq 0.05$). In conclusion, this study revealed the importance achieved by WS defects in the production of broiler meat as well as its very negative impact on water holding and binding capacity of breast meat.

Key words: broiler, breast fillet, white striping, occurrence, meat quality

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