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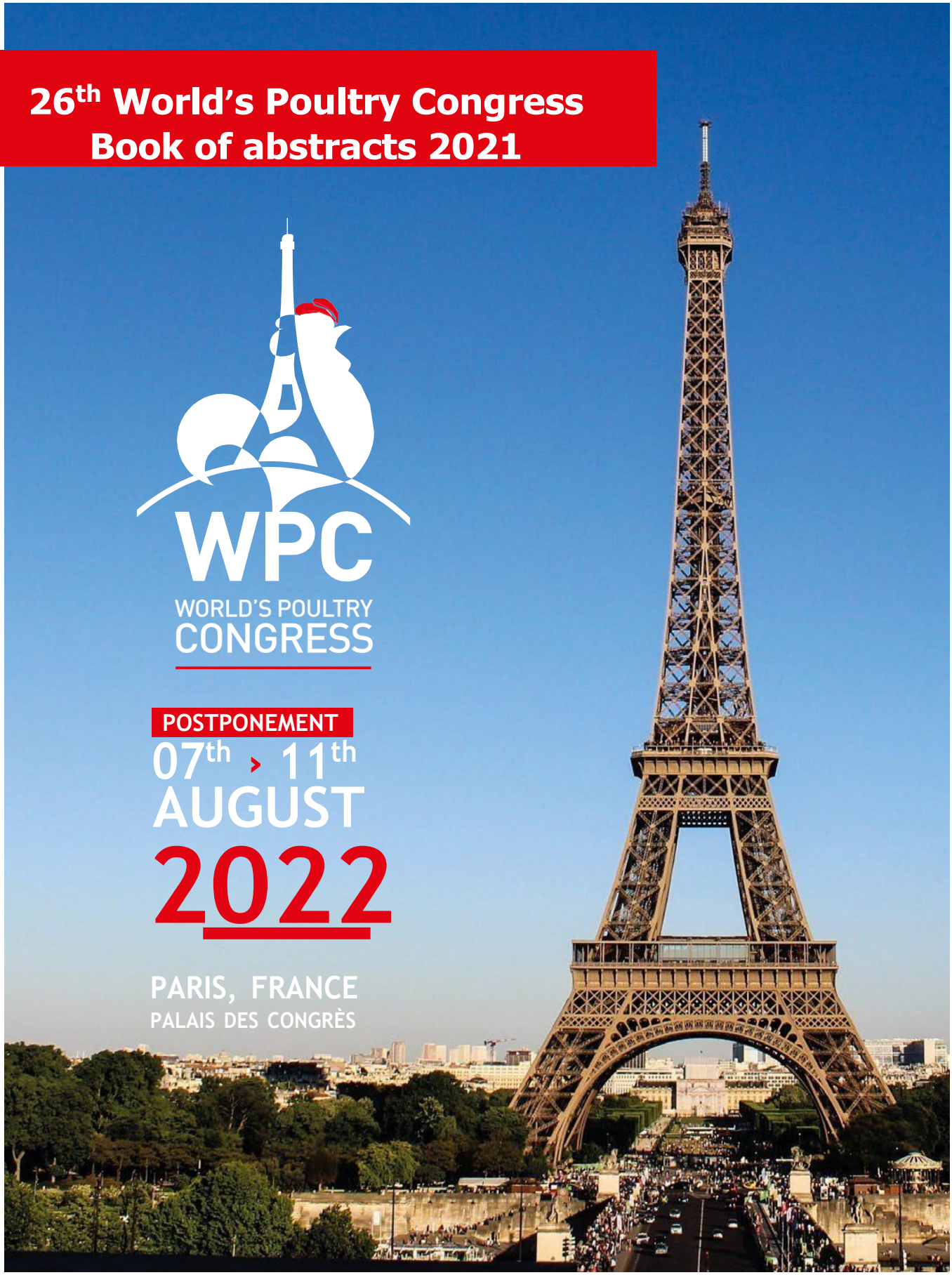

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DIFFERENCES IN TEXTURE ANALYSES OF CHICKEN BREAST FILLETS AFFECTED BY SEVERE WOODEN BREAST AND SPAGHETTI MEAT MYOPATHIES

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Texture of broiler meat is one of the most important attributes for consumers, and it can be affected by breast meat myopathies, such as wooden breast (WB) and spaghetti meat (SM). However, differences in textural measurements between samples can vary by the test applied, meat preparation (raw vs. cooked), and severity of myopathy. Thus, this study employed three tests: compression, Meullenet-Owens razor (MORS), and Allo-Kramer (AK) - to compare normal, WB, and SM fillets. A total of 209 fillets (68 normal, 71 WB, 70 SM) were selected from 3 flocks, at a large commercial processing plant, 3 h after slaughter. The fillets were analyzed for dry matter, crude protein, and fat contents (9 per meat type) as well as pH plus color, and then frozen for later texture analyses (181 fillets; 59 normal, 61 WB, 61 SM). Thawed fillets were submitted to: compression test (raw and cooked), and later cooked samples to the MORS test (blade: 0.5 mm thick, 8.9 mm wide, and the AK test (5 blades, 2 mm blade thickness). Data were analyzed by a mixed model with myopathy and flock as the main effects (SAS, 2013). Normal meat had lower fat content than WB meat (0.91% vs. 1.54%; $P<0.05$) with intermediate values for SM (1.25%), whereas protein content was higher in normal meat (23.9% vs. 22.3% and 22.7% in WB and SM; $P<0.01$); similar to previous results. Normal breasts were lighter (188 vs. 230 and 262 g in WB and SM; $P<0.01$), had lower L* and a* values than abnormal meat, and lower cooking losses (22.4% vs. 27.8% and 26.9% in WB and SM; $P<0.001$). Raw, normal and SM meat showed lower compression force (5.61 and 4.69 vs. 9.52 N), work (25 and 22 vs. 45 N x mm) and Young's modulus (2.71 and 2.11 vs. 4.29 N/sec) than WB ($P<0.001$); the same pattern was observed in cooked meat. For the MORS test, SM showed lower shear force (12.8 vs. 14.7 N), work (249 vs. 288 N x mm) and fewer peaks (5.39 vs. 7.57) than normal meat ($P<0.01$), whereas WB had intermediate values. For the AK test, SM showed lower force (10.5 vs. 14.5 N) and Young's modulus (31.0 vs. 46.0 N/sec) than WB ($P<0.01$), whereas normal meat had intermediate values. Overall, results revealed that texture tests show different sensitivity with respect to meat preparation and type. The compression test was useful to identify WB even in raw meat as well as in cooked meat. In cooked samples, MORS distinguished SM from normal fillets, whereas the AK test identified SM as different from WB.