Effect of reduction of oxygen concentration in modified atmosphere packaging on bovine *M. longissimus lumborum* and *M. gluteus medius* quality traits

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PII: S0309-1740(16)30369-2
DOI: doi:10.1016/j.meatsci.2016.10.004
Reference: MESC 7109

To appear in: *Meat Science*

Received date: 22 June 2016
Revised date: 7 October 2016
Accepted date: 10 October 2016

Please cite this article as: Łopacka, J., Półtorak, A. & Wierzbicka, A., Effect of reduction of oxygen concentration in modified atmosphere packaging on bovine *M. longissimus lumborum* and *M. gluteus medius* quality traits, *Meat Science* (2016), doi:10.1016/j.meatsci.2016.10.004

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ABSTRACT

This paper reports the impact of modified atmosphere gas compositions with different concentrations of $CO_2/O_2/N_2$ on physicochemical traits of beef steaks from M. *longissimus lumborum* and M. *gluteus medius*. Samples were stored at + 2 °C for 12 days. The gas compositions were as follows: (i) 50% O_2 /20% CO_2/30% N_2 (MAP1), (ii) 65% O_2/20% CO_2/15% N_2 (MAP2) and (iii) 80% O_2/20% CO_2 (MAP3). Packaging atmosphere did not affect CIEL*a*b* colour coordinates, which were affected by storage time and by muscle type. Lipid oxidation in *M. longissimus lumborum* was affected by packaging treatment; however *packaging treatment x storage time* interaction affected lipid oxidation significantly. Results showed that reduction of oxygen from the commercially used 80% to 50% does not negatively impact colour properties and state of myoglobin, but significantly lowers oxidative deterioration of *M. longissimus lumborum* at the end of storage.

Key words: Modified atmosphere packaging, beef, oxygen concentration, colour, TBARS