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**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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**ABSTRACT**

This paper reports the impact of modified atmosphere gas compositions with different concentrations of CO<sub>2</sub>/O<sub>2</sub>/N<sub>2</sub> 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<sub>2</sub>/20% CO<sub>2</sub>/30% N<sub>2</sub> (MAP1), (ii) 65% O<sub>2</sub>/20% CO<sub>2</sub>/15% N<sub>2</sub> (MAP2) and (iii) 80% O<sub>2</sub>/20% CO<sub>2</sub> (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

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