Livestock Science
Volume 136, Issue 2
2011

ABSTRACT

The quality characteristics of M. longissimus from Hanwoo (Korean cattle) steer with different raising altitudes and slaughter seasons

Panjono; Kang, Sun Moon; Lee, Ik Sun; Lee, Sung Ki;

Department of Animal Products and Food Science, Kangwon National University, KNU Ave 1, Chuncheon 200-701, Republic of Korea

Received 11 January 2009, Revised 21 July 2010, Accepted 17 September 2010, Available online 14 October 2010.

The quality characteristics of M. longissimus from Hanwoo steer with different raising altitudes and slaughter seasons were studied. The experiment used factorial design with raising altitude and slaughter season as treatments. Forty eight steer were raised in two groups of raising altitude, i.e. 100 m of altitude (low) and 700 m of altitude (high), and were slaughtered in two groups of slaughter season, i.e. the end of September (summer) and the end of March (winter). The initial age of cattle was 22 months and they were raised for six months prior to slaughter. At 48 h post-slaughter, the samples were collected for meat quality analyses. Part of samples was stored at 2 ± 0.2 °C for 9 days for lipid and myoglobin stabilities. Meat from high raising altitude had lower ($P < 0.05$) saturated fatty acids and higher ($P < 0.05$) unsaturated fatty acids concentrations than that from low altitude. Polyunsaturated fatty acids n-6/n-3 of meat from summer slaughter season were significantly lower ($P < 0.01$) than that from winter season. The pH of meat from high raising altitude was significantly higher ($P < 0.05$) than that from low altitude and that from summer slaughter season was significantly higher ($P < 0.001$) than that from winter season. Aroma and tenderness scores of meat from summer slaughter season were significantly higher ($P < 0.05$) than those from winter season. There were no significant difference TBARS values of meat between two raising altitudes and two slaughter seasons during storage from summer was significantly higher ($P < 0.05$) than that from winter slaughter season. At 9 days of storage, the oxymyoglobin concentration at the surface of meat from high raising altitude was significantly lower ($P < 0.01$) than those from low raising altitude and the metmyoglobin concentration at the surface of meat from high raising altitude was significantly higher ($P < 0.01$) than those from low altitude. There was no significant difference in oxymyoglobin and metmyoglobin concentrations at the surface of meat between two slaughter seasons during storage. Different raising altitudes affected fatty acid composition, pH and myoglobin stability during refrigerated storage. Different slaughter seasons affected fatty acid composition, pH and sensory properties without any effects on lipid and myoglobin stabilities during refrigerated storage.

END