

Effects of dietary oil blend on fatty acid composition, oxidative stability and physicochemical properties of Longissimus thoracis et lumborum muscle in goats

ABSTRACT

This study examined the effects of dietary blend of 80% canola oil and 20% palm oil (BCPO) on the physicochemical properties, antioxidant status, oxidative stability and fatty acid composition of Longissimus thoracis et lumborum (LTL) muscle from goats during chill storage. Over a 14-week feeding trial, 24 Boer bucks were randomly assigned to and supplemented with diets containing 0, 4 or 8% BCPO on a dry matter basis, slaughtered and the LTL was subjected to a 7 day chill storage. Neither diet nor post mortem ageing influenced ($P > 0.05$) antioxidant enzyme activities, chemical composition and cholesterol. Diet had no effect on the carbonyl content, free thiol content, water-holding capacity, tenderness, pH and glycogen. Oil-supplemented goats had higher ($P < 0.05$) C18:1 trans-11, C18:3n-3 and C20:5n-3, carotenoid, tocopherol and redness, and lower thiobarbituric acid reactive substances values than the control goats. Post mortem ageing decreased ($P < 0.05$) shear force and oxidative stability of chevon. No significant ($P > 0.05$) changes were found in the proportion of individual fatty acids throughout storage. Total polyunsaturated fatty acids (PUFA) decreased while total saturated fatty acids increased as storage progressed. Dietary BCPO enhanced n-3 PUFA without compromising the quality attributes of chevon.

Keyword: Ageing; Antioxidant; Carbonyl; Cholesterol; Thiol