

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