Fatty acid composition, cholesterol and antioxidant status of infraspinatus muscle, liver and kidney of goats fed blend of palm oil and canola oil

ABSTRACT

The study assessed the lipid profile, cholesterol and antioxidant status of infraspinatus muscle, kidney and liver from goats supplemented with increasing levels of blend of 20% palm oil and 80% canola oil. Twenty-four Boer bucks were randomly assigned to diets containing 0, 4 and 8% oil blend, fed for 100 d and slaughtered. The tissues were subjected to 7 d postmortem storage at 4℃. Diet did not affect total lipid and cholesterol content in the tissues. The proportions of C14:0 in infraspinatus muscle and kidney, and C15:0 in all tissues were lower ($p<0.05$) while the proportion of C18:3n:3 was greater in supplemented goats than the control goats. Proportion of C18:1n-9 in infraspinatus muscle was higher ($p<0.05$) in goats fed oil blend than the control goats. The liver and the infraspinatus muscle of the control goats had higher C18:1 trans-10 but lower C18:1 trans-11 compared with those fed other diets. Diet had no effect on catalase, superoxide dismutase and glutathione peroxidase activities, and the concentration of ɔ and ŭ-tocopherol and lipid oxidation in all tissues. The concentrations of Ŭ-tocopherol and total carotenoid were greater in the tissues of oil-fed goats compared with the control goats. Regardless of tissue, the catalase and superoxide dismutase activities were stable throughout storage. Lipid oxidative stability, glutathione peroxidase activity, tocopherol and carotenoid contents in the tissues decreased ($p<0.05$) as postmortem storage progressed. Dietary 20% palm oil and 80% canola oil blend modified the fatty acids in goat meat and offal without compromising their oxidative stability.

Keyword: Antioxidant; Fatty acid; Infraspinatus muscle; Kidney; Liver