Myofibrillar protein, lipid and myoglobin oxidation, antioxidant profile, physicochemical and sensory properties of Caprine longissimus thoracis during postmortem conditioning

ABSTRACT

The study examined the impact of refrigerated storage on antioxidant profile, oxidative changes in myoglobin, lipids and myofibrillar proteins and quality attributes of longissimus thoracis (LT) muscle from goats. Analyses were conducted on LT obtained from carcasses of sixteen Boer bucks on 0, 1, 5 and 10 days postmortem. Ageing had no effect on antioxidant enzyme activities. Concentration of tocopherols and total carotenoids decreased over storage. Myoglobin, metmyoglobin reducing activity, redness and shear force decreased while metmyoglobin content and drip loss increased over storage. Free thiol decreased while carbonyls and TBARS increased over storage. The relative density of myosin heavy chain, actin and troponin T and the concentration of nī 6 and nī 3 fatty acids were stable until day 5 but declined afterward. Tocopherol and carotenoid were correlated ($P < 0.05$) with oxidative changes. Ageing did not affect consumer preference for juiciness, flavor and overall acceptability. However, preference for tenderness increased over storage.

Keyword: Postmortem ageing; Oxidation; Sensory; Refrigerated storage; Longissimus thoracis muscle