

Fatty acid profiles of supraspinatus, longissimus lumborum and semitendinosus muscles and serum in Kacang goats supplemented with inorganic selenium and iodine

ABSTRACT

Fat and fatty acids in muscle and adipose tissues are among the major factors influencing meat quality particularly nutritional value and palatability. The present study was carried out to examine the effects of supplementing inorganic selenium (Se), iodine (I) and a combination of both on fatty acid compositions in serum, and supraspinatus (SS), longissimus lumborum (LL), and semitendinosus (ST) muscles in goats. Twenty-four, 7 to 8 months old, Kacang male goats with a mean live weight of 22.00 ± 1.17 kg were individually and randomly assigned into four groups of six animals each for 100 d of feeding prior to slaughter. The animals were offered the same concentrate (basal) diet as 1% of body weight with ad libitum amount of fresh guinea grass. The four groups were as follows: T1 (control) - basal diet without supplementation; T2 - basal diet with 0.6 mg Se/kg DM; T3 - basal diet with 0.6 mg I/kg DM; T4 - basal diet with combination of 0.6 mg Se/kg DM and 0.6 mg I/kg DM. The major fatty acids (FAs) detected in the serum were palmitic (C16:0), stearic (C18:0), oleic (C18:1n9) and linoleic (C18:2n-6), while the major FAs in the selected muscles were C16:0, C18:0 and C18:1n9 acids. The main polyunsaturated fatty acids (PUFA) detected in muscles and serum were (C18:2n-6), linolenic acid (C18:3n-3), and arachidonic acid (C20:4n-6). No significant differences ($p > 0.05$) were observed in the concentration of total saturated fatty acids (SFA) among the four groups. PUFA concentrations in the goats supplemented with Se (T2) were significantly higher ($p < 0.05$) than the goats of the control group (T1). The PUFA: SFA ratio was significantly higher in the animals supplemented with dietary Se (T2) than those of control ones (T1). It is concluded that dietary supplementation of inorganic Se increased the unsaturated fatty acids in muscle. The supplementation of iodine with or without Se had negligible effects on muscle fatty acid content of Kacang crossbred male goats.

Keyword: Fatty acids; Goat meat; Iodine; Selenium; Serum