

Changes in fatty acid composition and distribution of N-3 fatty acids in goat tissues fed different levels of whole linseed

ABSTRACT

The effects of feeding different levels of whole linseed on fatty acid (FA) composition of muscles and adipose tissues of goat were investigated. Twenty-four Crossed Boer bucks were assigned randomly into three treatment diets: L0, L10, or L20, containing 0%, 10%, or 20% whole linseed, respectively. The goats were slaughtered after 110 days of feeding. Samples from the longissimus dorsi, supraspinatus, semitendinosus, and subcutaneous fat (SF) and perirenal fat (PF) were taken for FA analyses. In muscles, the average increments in α -linolenic (ALA) and total n-3 PUFA were 6.48 and 3.4, and 11.48 and 4.78 for L10 and L20, respectively. In the adipose tissues, the increments in ALA and total n-3 PUFA were 3.07- and 6.92-fold and 3.00- and 7.54-fold in SF and PF for L10 and L20, respectively. The n-6 : n-3 ratio of the muscles was decreased from up to 8.86 in L0 to 2 or less in L10 and L20. The PUFA : SFA ratio was increased in all the tissues of L20 compared to L0. It is concluded that both inclusion levels (10% and 20%) of whole linseed in goat diets resulted in producing meat highly enriched with n-3 PUFA with desirable n-6 : n-3 ratio.

Keyword: Adipose tissue; Experimental goat; Food intake; Linseed; Lipid analysis; Lipid composition