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Nutrient digestibility and ruminal fatty acid metabolism in lambs supplemented with soybean oil partially replaced by fish oil blend

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Abstract

The objective of these experiments was to evaluate the effects of partially replacing soybean oil with small amounts of fish oil blend on the intake and digestibility of nutrients, ruminal SCFA and pH, and duodenal flow of fatty acids. Five ram lambs rumen and proximal duodenum-cannulated (51.7 ± 3.1 kg of initial BW; mean ± SD) were assigned to a 5 x 5 Latin square design. The oils were added to a basal diet that contained 900 g/kg DM of concentrate (corn, soybean meal, soybean hulls, urea, ammonium chloride, limestone, mineral mix, and Rumensin® 100) and 100 g/kg DM) and 100 g/kg DM of forage (fresh sugarcane bagasse). The treatments were as follows: 1) basal diet without added oil (CONT); 2) 40 g/kg DM of soybean oil (0FO); 3) 2.5 g/kg DM of fish oil blend + 37.5 g/kg DM of soybean oil (2.5FO); 4) 5 g/kg DM of fish oil blend + 35 g/kg DM of soybean oil (5.0FO); and 5) 7.5 g/kg DM of fish oil blend + 32.5 g/kg DM of soybean oil (7.5FO). All diets were isonitrogenous (160 ± 3 g/kg DM of CP). Intakes of DM, organic matter (OM), non-fiber carbohydrates (NFC), and neutral detergent fiber (NDF) (kg/d) were not affected by the treatments.