

Study of meat quality of goats fed rice straw supplemented with Moringa (*Moringa oleifera* Lam.) foliage

ABSTRACT

The study was conducted to investigate the effects of dietary levels of Moringa foliage on the fatty acid profiles and antioxidant activity in the muscles of Black Bengal goats. Thirty buckling of 6 to 8 months of age with an average initial live weight (LW) of 8.07 (± 0.87) kg were allocated into five different diets having six in each group for 105 days. Keeping molasses treated rice straw ad libitum as sole diet, 70% of dietary dry matter (DM) requirement was supplied with a conventional concentrate which was replaced with Moringa foliage in treatment diets at 25, 50, 75 and 100%, respectively. Consequently, Moringa foliage intake represented 17.8, 35.6, 52.9 and 67.2% of total diet or 0.85, 1.7, 2.5 and 3.4% of LW in treatment diets keeping the daily gain and dietary intake unchanged ($P > 0.05$). The dietary DM intake and LW gain was 4.6 to 4.8% of average LW and 67.3 to 79.3 g/d. The ratio of polyunsaturated fatty acids (PUFA) n-6 to n-3 was significantly ($P < 0.01$) reduced in diet containing 67.2% Moringa foliage, from 4.2 to 2.4% and 3.8 to 2.6% in Longissimus dorsi (LD) and Semitendinosus (ST) muscles of goats, respectively. The saturated fatty acid was reduced from 47.7 to 39.8% and 45.8 to 39.3%, respectively in both muscles. The lipid oxidation was reduced linearly ($y = -0.1x + 0.698$, $r^2 = 85$ for LD; $y = -0.073x + 0.675$, $r^2 = 95$ for ST) with increasing supplementation of Moringa foliage. It was concluded that supplementation of Moringa foliage up to 67.2% of diet will produce meat with high PUFA.

Keyword: Intake of moringa foliage; Black bengal goat; Fatty acid profile; Antioxidant activity