Effects of locust bean pulp with melon husk supplementation on nitrogen utilization and blood chemistry of west African dwarf goats

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Abstract

The effect of locust bean pulp with melon husk supplementation on nitrogen utilization and blood chemistry of West African Dwarf goats were assessed in a 3 months feeding trial. Eighteen West African Dwarf goats with an average weight of 6.00 ± 0.15kg were randomly allotted to three dietary treatments with two replicates of three goats per treatment in a completely randomized design. The treatment diets were; diet 1 (100% guinea grass that services as control group), diet 2 (70% guinea grass and 15% locust bean pulp with 10% melon husk) and diet 3 (50% guinea grass and 30% locust bean pulp with 20% melon husk). A metabolism trial was conducted at the end of the feeding trial to assess diets on nitrogen utilization after the blood collection. Results obtained showed that faecal nitrogen output (2.71g/day), urinary nitrogen output (1.00g/day), total nitrogen loss (3.71g/day) and serum urea (11.07mg/dl) were significantly (P < 0.05) higher in diet 1 than diets 2 and 3. Serum globulin (3.58g/dl) and glucose (64.82mg/dl) were significantly (P < 0.05) better in goats on diet 2. Goats on diet 3 were significantly (P < 0.05) higher in nitrogen intake (17.52g/day), nitrogen balance (15.02g/day), nitrogen retention (85.73%), packed cell volume (29.78%), haemoglobin (9.87g/dl), red blood cell (10.46 x 106/ML), white blood cell (11.86 x 103/ML), total protein (7.45g/dl) albumin (3.93g/dl) and cholesterol (40.31mg/dl) compared to animals on diets 1 and 2. No significant (P > 0.05) effect in treatment diets with regards to mean corpuscular volume, mean corpuscular haemoglobin, mean corpuscular haemoglobin concentration and creatinine. It can be concluded that goats fed 50% guinea grass and 30% locust bean pulp with 20% melon husk had the potential to enhance nitrogen utilization and blood chemistry in goats.

Keywords: Locust bean pulp, melon husk, nitrogen retention, blood chemistry, goats