

Estimation of Microbial-N Supply to Small Intestine in Angora Goats Fed by Different Roughage Sources

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Abstract : The aim of the study was to estimate the microbial-N flow to small intestine based on daily urinary purine derivatives (PD) mainly xanthine, hypoxanthine, uric acid and allantoin excretion in Angora goats fed by grass hay and concentrate (Period I); barley straw and concentrate (Period II). Daily urine samples were collected during last 3 days of each period from 10 individually penned Angora bucks (LW 30-35 Kg, 2-3 years old) receiving ad libitum grass hay or barley straw and 300 g/d concentrate. Fresh water was always available. 4N H₂SO₄ was added to collected daily urine samples to keep pH under 3 to avoid of uric acid precipitation. Diluted urine samples were stored at -20°C until analysis. Urine samples were analyzed for xanthine, hypoxanthine, uric acid, allantoin and creatinine by High-Performance Liquid Chromatographic Method (HPLC). Urine was diluted 1:15 in ratio with water and duplicate samples were prepared for HPLC analysis. Calculated mean levels (n=60) for urinary xanthine, hypoxanthine, uric acid, allantoin, total PD and creatinine excretion were 0.39±0.02, 0.26±0.03, 0.59±0.06, 5.91±0.50, 7.15±0.57 and 3.75±0.40 mmol/L for Period I respectively; 0.35±0.03, 0.21±0.02, 0.55±0.05, 5.60±0.47, 6.71±0.46 and 3.73±0.41 mmol/L for Period II respectively. Mean values of Period I and II were significantly different (P < 0.05) except creatinine excretion. Estimated mean microbial-N supply to the small intestine for Period I and II in Angora goats were 5.72±0.46 and 5.41±0.61 g N/d respectively. The effects of grass hay and barley straw feeding on microbial-N supply to small intestine were found significantly different (P < 0.05). In conclusion, grass hay showed a better effect on the ruminal microbial protein synthesis compared to barley straw, therefore; grass hay is suggested as roughage source in Angora goat feeding.

Keywords : angora goat, HPLC method, microbial-N supply to small intestine, urinary purine derivatives

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