



Tropentag, September 17-19, 2013, Stuttgart-Hohenheim
“Agricultural development within the rural-urban continuum”

Protein Picture, Clinical Profile and Rumen Characteristics of Sheep Fed Diets Containing Condensed Tannins

OSMAN MAHGOUB¹, ISAM KADIM¹, HAMZA BABIKER², MOHAMMED N. AL-KINDI¹

¹*Sultan Qaboos University, College of Agricultural & Marine Sciences, Dept. of Animal and Veterinary Sciences, Oman*

²*Sultan Qaboos University, College of Medicine & Health Sciences, Dept. of Biochemistry, Oman*

Abstract

A study was carried out to investigate the effects of feeding low quality non-conventional feeds (NCF) containing phenols and condensed tannins on health and performance characteristics in Omani sheep. Twelve Omani sheep were fed one of two base roughages, urea treated palm frond (UTPF) or Rhodes grass hay (RGH) plus a commercial concentrate for 63 days. Haematological, serum biochemical and urine analyses were used to assess sheep health. Serum protein fractions were measured using electrophoresis.

Urea treated palm frond contained higher levels of polyphenols and condensed tannins and fiber than the Rhodes grass hay or the commercial concentrate feed. Animals fed UTPF had lower feed intake ($p < 0.05$) and lower body weight gain ($p < 0.001$) than those fed RGH. Rumen liquor of UTPF-fed animals had higher pH, ammonia-nitrogen and butyric fatty acid but lower acetic fatty acid ($p < 0.05$). Animals fed UTPF had higher neutrophil ($p < 0.05$) but lower lymphocyte ($p < 0.05$) and monocyte ($p < 0.001$) counts by the end of the trial than those fed RGH. There were no effects of diet on serum albumin or globulin fractions levels or albumin : globulin ratio. There were no major effects on urine analysis but there was a trend by control animals to have higher protein and specific gravity than treated ones. This experiment indicated that feeding low quality non-conventional feeds containing polyphenols or tannins would reduce body gain and may produce some effects on clinical parameters. Although tannins are known to influence protein digestion and absorption in ruminants, they did not significantly affect serum protein picture in sheep.

Keywords: Haematology, phenols, protein, sheep, tannins