

DIETARY SELENIUM CHANGES AND ITS RELATION WITH ADAPTABILITY IN SMALL RUMINANTS

Younis, F. E.

Animal Physiology Department, Animal and poultry Division, Desert Research Center, Mataryia, Cairo, Egypt.

ABSTRACT

The objective of this study was to determine the various dietary levels of selenium (Se) as sodium selenate ($\text{Na}_2 \text{Se O}_4$) and its relation with adaptability of sheep. This study was carried out at Ras Suder (South Sinai Governorate) experimental station using eighteen weaned Barki ram lambs (4 months age and 13.81 ± 1.60 kg average body weight) assigned to three groups (6 each).

Data showed that dry matter, crude protein of alfalfa treated with Se in treatment groups (G2, 0.7 ppm of Se and G3, 1.4 ppm of Se) were greater than those of the untreated group (G1). The body weight changes and average daily gain in G2 and G3 were higher than control (G1) while the opposite trend was obtained for feed efficiency. Contents of CF, Se and Cu in G2 and G3 were higher than G1. Retention of Se, Cu and p were improved specially for copper.

Average daily gain (ADG) of lambs recorded comparable values without significant differences for groups. The values ranged from 65.3 in G3 to 79.8 g/head/day in G2. Concentrations of albumin and activities of Alk Phos, AST, ALT, GGT, and CPK in serum collected at the termination of the experiment.

Selenium supplementation resulted significantly ($P < 0.05$) for percentage yield of clean wool, staple strength and point of break. The mean values of staple strength in G2 and G3 were higher ($p < 0.05$) than that of G1. Manipulation of dietary selenium source and level is an effective way to change the selenium content of animal tissues commonly consumed by mankind and improvement adaptability of sheep.

Keywords: Adaptability, Selenium, Trace elements, Liver function, wool biology

INTRODUCTION

Under desert conditions, small ruminant exposed to many of environmental constraints; acute deficiency in feed resources as a result of low rainfall rate and long drought periods, bad climatic conditions, shortage of water and parasites infection and disease due to immunity deficiency, which affected negatively their productive and reproductive performances .

Although trace minerals comprise less than 0.01% of the total mass of an organism, many are essential for normal function (Fisher, 1975, Underwood, 1977 and Freer and Dove 2002). Selenium is an essential trace element to poultry, horses, cattle, and sheep (Schwarz, 1976 and Underwood, 1977). Selenium is important in sulfur amino acid synthesis (Larry, 2006).

The deficiency of selenium was found to be common in ruminants (Jeffery, 2005). Compared with non-ruminants, the absorption of selenium is much lower in ruminant animals (Jerry, 2003). Selenium supplementation was reported to increase wool growth (Langlands *et al.*, 1991a and 1991b and Whelan *et al.*, 1994). Selenium (Se) supplementation as sodium selenate