

EFFECT OF ZINC SOURCE ON NUTRIENT DIGESTIBILITY, RUMEN FERMENTATION AND RUMEN MICROBIAL POPULATION COUNT IN SHEEP

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This study investigated the impacts of dietary zinc source, organic or inorganic on nutrient digestibility, rumen fermentation and rumen microbial population count in sheep. Three digestibility trials were carried out using nine local rams randomly assigned into three groups, 3 rams each, each trial lasted for three weeks. The control group was fed the basal diet consisting of wheat straw and concentrates mixture, while the other two tested groups were fed the same basal diet supplemented with 20 mg Zn/head/day as Zinc Sulphate (ZnSO₄) or 20 mg Zn/head/day as Zinc methionine (Zn-Meth). Animals were fed 60% of their requirements as concentrate mixture while, wheat straw was given as roughages *ad libitum*. The basal diet contains 40 mg Zn/kg DM. The results referred that, Zn-methionine improved ($P < 0.05$) the digestibility of crude fiber. Also, supplement ZnSO₄ or Zn-Meth to rams diet increased ($P > 0.05$) CP digestibility as compared with control group. Average ruminal pH values for ZnSO₄ and Zn-Meth groups were higher ($P < 0.05$) than control group. However, the total VFA and NH₃-N concentration in rumen fluids were not significantly affected by treatments. Supplement Zn in form of inorganic and organic source to sheep rations increased ($P < 0.05$) total protozoa counts. However, the total bacterial counts were not affected by Zn supplementation. The higher value of nitrogen retained was recorded in Zn-Meth group followed by control group. In conclusion: Zinc supplementation, particularly Zn-Meth increased protozoa population that may reflect on nutrient digestibility and nitrogen retained.

Keywords: *Zn-methionine, Zn sulphate, digestibility, rumen fermentation, rumen microbial population count*