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**VARIATIONS IN TISSUES METABOLITES AND GUT MICROBIAL
FLORA OF ADULT MALE ZONOCERUS VARIEGATUS (L)
(ORTHOPTERA: PYRGOMORPHIDAE) DURING STARVATION**

*Ademolu, K.O., Oguntayo, O.O., Idowu, A.B. and Dedeke, G.A.

Biological Sciences Department, University Of Agriculture, P.M.B 2240, Abeokuta, Nigeria

*Correspondence author: kennvademolu@yahoo.com

ABSTRACT

A study to determine the influence of starvation on the gut microbial flora and somatic tissue; (femoral muscles/ fat body and haemolymph) metabolites of adult male *Zonocerus variegatus* was conducted. Two hundred and fifty (250) *Z. variegatus* individuals were collected from the field and randomly divided into five groups A-E based on the starvation duration (0/ 24/ 48/ 72/ 96 hours). The colony forming units (cfu) of the gut microbial flora decreased as the starvation period progressed with the midgut recording the highest values. Na^+ and Cl^- were the only inorganic ions significantly ($P < 0.05$) affected by starvation as their concentrations in the tissues dropped significantly during the 96 hours starvation. Similarly, a strong positive relationship existed between glucose concentration in the fat body and starvation period (+0.61). The tissues' glucose concentrations dropped during the 96 hours starvation (in fat body glucose concentration dropped from 28.0mg/dl at 0 hour to 20.0mg/dl at 96 hour) while tissues' lipid and protein concentrations were not significantly affected. Glucose can then be concluded to be the most utilized metabolite during starvation in *Z. variegatus*.

Keyword: Starvation/ tissues/ metabolites/ microbial flora *Zonocerus variegatus*