



Tropentag, October 5-7, 2011, Bonn

“Development on the margin”

## Documenting Normal Microflora in *Thryonomys swinderanus*: Towards Accelerated Domestication of Emerging Peri-Urban Micro- Livestock

MOHAMMED YARO<sup>1</sup>, PHYLLIS ADDO<sup>2</sup>, REYNOLDS-BARNES ANNA<sup>2</sup>

<sup>1</sup>*Biotechnology and Nuclear Agriculture Research Institute, Animal Science, Ghana*

<sup>2</sup>*University of Ghana, Noguchi Memorial Institute of Medical Research, Animal Experimentation, Ghana*

### Abstract

Grasscutter meat is widely recognised as a source of animal protein in many West African countries, particularly, Ghana, Benin, and Côte d'Ivoire. Despite the apparent potential of the grasscutter, attempts made to domesticate it have been hampered against by high mortality caused by diseases and nutritional factors, resulting in over reliance on the wild populations. It is in this light that this work seeks to initiate a novel chapter in the study of the grasscutter by first documenting its intestinal microflora for health and nutritional exploration. Thirty-six healthy grasscutters (neonates, weanlings, subadults and adults) for a period of six months, were examined for gastrointestinal tract (GIT) cultivable normal microflora using the culture method. The normal GIT microflora isolated in the 1-week, 2-week, 3-week and 4-week old grasscutters were similar in composition and they comprised: *Staphylococcus* species, *Bacillus* species, *Bacillus cereus*, *Escherichia coli* and *Klebsiella* species in the aerobic cultures. *Peptostreptococcus* species and *Bacteroides* species were identified in the anaerobic cultures. Unexpectedly, *Candida albicans* grew profusely on both aerobic and anaerobic cultures throughout the one month life of the neonates. Analysis of the weanlings, subadults and adults showed that GIT microflora had similar composition as that of the neonates but also had in addition, *Enterobacter* species from the aerobic cultures, and *Corynebacteria* species and *Clostridium perfringens* from the anaerobic cultures. The sex of grasscutters did not constitute any statistically significant source of variation in the populations of the cultivable aerobic GIT normal microflora. The age of the grasscutter significantly influenced the populations of all cultivable aerobic GIT normal microflora identified ( $p < 0.01$ ) except for the staphylococcus species. The study identified varying levels of correlations both negative and positive among populations of the cultivable aerobic GIT normal microflora, except *Enterobacteriaceae* and *Bacillus cereus* that were not correlated. *Bacillus cereus* isolation particularly is of significance as it is a documented causative organism of food poisoning in humans. The findings of this novel study will provide the impetus for meaningful studies into microbial disease and the possible use of probiotics to enhance the performance of grasscutter in captivity.

**Keywords:** Cultivable, intestinal, microflora, probiotic