UNIVERSITÄT LEIPZIG

Zentrum für Infektionsmedizin
Sprecher: Prof. Dr. G. Alber
Institut für Bakteriologie und Mykologie
Institut für Immunologie
Institut für Parasitologie
Institut für Virologie

Institut für Parasitologie An den Tierkliniken 29, D-04103 Leipzig
Direktor: Prof. Dr .M. Krüger

Alternative methods to reduce infectious burdens in farm animal stables

MKrüger[1], H Gerlach[3], A Gerlach[3], W Schrödl[1] und A Shehata[1,2]

[1] Institut für Bakteriologie und Mykologie, Universität Leipzig
[2] Albrecht-Daniel-Thaer-Institut für Agrar- und Veterinärwissenschaften e.V., Aninstitut der Universität Leipzig
[3] Tierarztpraxis A. Gerlach, 25712 Burg

Introduction

The quality of the micro climate represented by temperature, humidity, concentration of harmful gases, dust and microbial pollutions is of crucial importance for the development and fate of infectious diseases often treated with antimicrobial drugs excreted by urines and feces. They reach pastures, grasslands and croplands by liquid manures or dung and influence the soil microbiota. Furthermore these drugs are the source of antimicrobial resistances of bacterial agents in humans and animals. Toxic contaminations in feeds (mycotoxins) or bacterial toxins produced inside the gastrointestinal tract are often the cause of chronic diseases. Alternative methods with lactobacilli, charcoal and humic acids were used to reduce infectious burdens in broilers and dairy cows.

Methods

In chicken stables lactobacilli (fermented herbage extract) applied by cold fogging device were yielded. Lactobacilli were also given by drinking water. Harmful gases, dust and microorganisms were estimated in the air of stables. In a dairy farm (380 cows) charcoal and humic acids were applied by feeds. *Clostridium(C.) botulinum* antibodies and haptoglobin were measured in the blood of cows.

Results and conclusions

With fermented herbage extracts (effective microorganisms, mostly lactobacilli) nebulized by a cold fogging device and its application by drinking water lead to significantly reduced dust

concentrations, microbial pollutions and harmful gases in the air and reduced acute phase protein (avidin) concentration in the blood of the animals, a marker of microbial burden.
With charcoal (400 and 200g g/animal and day) and humic acids (120g/animal and day) it was able to suppress toxin producing bacteria (*C. botulinum*) and to reduce the acute phase protein haptoglobin. We could show that the antibody concentrations to *C. botulinum* and the haptoglobin concentrations were reduced by oral application of charcoal (400g/d and 200g/d) or humic acids (120g/d). After omitting of charcoal and humic acids the antibody and haptoglobin concentrations in blood serum increased.

Keywords: cold fogging, lactobacilli, charcoal, humic acids
Presenter: mkrueger@vmf.uni-leipzig.de