



Tropentag, September 20-22, 2017, Bonn

“Future Agriculture:
Socio-ecological transitions and bio-cultural shifts”

The Use of Pineapple Husk and Neem Tree Leaves as Anthelmintic Nutraceuticals for Pigs in Mexican Low-Input-Systems

PHILIPP SEIFERT¹, CHRISTIAN HÜLSEBUSCH², WILBERTH TREJO LIZAMA³, EVA SCHLECHT¹

¹University of Kassel / University of Goettingen, Animal Husbandry in the Tropics and Subtropics, Germany

²German Institute for Tropical and Subtropical Agriculture (DITSL), Germany

³Universidad Autónoma de Yucatán, Campus de Ciencias Biológicas y Agropecuarias, Mexico

Abstract

The creole pig is an important source of protein in traditional farming systems in Yucatán, México. Gastrointestinal helminthiasis causes considerable economic losses due to retarded animal growth and lowered feed conversion efficiency. Pineapple husk (*Ananas comosus*) and neem tree leaves (*Azadirachta indica*) are widely available in tropical countries and are used against gastrointestinal parasites in ruminants. Yet, their effectiveness against pig helminths has to date not been studied.

A trial was conducted at the experimental stables of *Universidad Autónoma de Yucatán*, México. It included 29 young creole pigs of 9.6 kg \pm 2.9 liveweight with natural polyparasitic infections exceeding a threshold value of 200 eggs per gram of feces (EpG). Animals were randomly assigned to treatment group A (ananas, n=9), treatment group N (neem, n=10) and control group C (n=10). Mixed infections including *Strongyloides* spp., *Oesophagostomum dentatum* and *Trichuris suis* were detected using the modified McMaster test. Main components of the experimental diets administered for 10 days were 65% maize- and 15% soybean-meal. They further contained 17% dried pineapple husk (group A) and 15% dried Neem leaves (group N) at uniform crude fiber concentrations across treatments. During the experiment, individual EpG values were determined every 48 hours. On day 10, 6 animals per treatment were killed and parasites remaining in the digesta of the gastrointestinal tract (GIT) were identified and counted (cpGIT). EpG and cpGIT in control animals were compared to values in treated animals for computation of treatment percentage efficacy (TPE).

In group N, no significant EpG-changes could be found (TPE: +3%, $p > 0.10$) after 10 days, whereas EpG was decreased by 84% (TPE) in group A. Necropsy and cpGIT showed an increased cpGIT (+31.2% TPE) in group A and suggested a slight reduction of adult female parasites in neem treated animals (TPE: -15.3%, $p \geq 0.05$). Body weight change and hematocrit did not show significant differences ($p > 0.10$) neither between nor within the groups.

Our findings suggest that pineapple husk is a nutraceutical that may reduce fecundity and hamper oviposition in swine-pathogen helminths. Further research is needed to confirm these findings and to specifically investigate the mode of action of pineapple husk.

Keywords: Ethnoveterinary medicine, helminths, nutraceutical, pigs, pineapple