



## Improving smallholder pig farmers' knowledge on *Taenia solium* has the potential for reducing porcine and human cysticercosis incidences in endemic areas of Tanzania

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in the sector of food production to reduce the generation of chemical waste, and the use of alternative medicines can be a good strategy for this purpose. The Neem oil is extracted from the plant *Azadirachta indica* originally from India that has several medical indications. The objective of this research was to determine the effectiveness of a commercial Neem oil Organic Neem® against cattle tick by in vitro (Lab. Parasitic Diseases, UFPR) and in vivo (Parana Reference Centre for Agroecology, CPRA) assays. In vitro tests used engorged females, which were weighed, immersed for 5 min in 12 concentrations ranging from 0.16% to 10.24% and a control group in triplicates and kept in incubator (80% RHA, 27 °C) for 14 days. Eggs were then incubated for another 26 days under the same conditions for the visual assessment of hatching. In vivo test was conducted spraying 12 adult Jersey cows. Six animals were treated with *A. indica* at 3% concentration as indicated by the manufacturer. Engorged ticks were counted 9 times after treatment, and daily during the first week. The results from both studies revealed no significant differences in between treatments. The regression analysis showed no correlation between the increase of the concentration of Neem and its effects as ectoparasiticide.

#### PO1.37

##### Improving Smallholder Pig Farmers' Knowledge on *Taenia solium* Has the Potential for Reducing Porcine and Human Cysticercosis Incidences in Endemic Areas of Tanzania

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**Introduction:** *Taenia solium* causes cysticercosis in pigs and humans, leading to great economic losses and human suffering due to condemnation of infected pigs and disabilities in neurocysticercotic patients. Health education of rural smallholder pig farmers and their livestock management advisors in northern Tanzania led to an important reduction of porcine cysticercosis incidence in sentinel pigs, an indication of the potential for reducing human cysticercosis incidence. The health educational package developed with community involvement in northern Tanzania was adapted and evaluated in the southern region.

**Methods:** In 2008, 700 smallholder rural pig farmers and 14 livestock extension workers in Chunya district were trained on *T. solium* transmission, impact, prevention and control. A five item questionnaire was self-administered to 117 (17%) of the smallholder pig farmers immediately before and after the training to measure their knowledge on *T. solium* and

attitude towards consumption of infected pork. Data were analysed using the McNemar test for paired proportions.

**Results:** Responses on all knowledge questions improved significantly ( $P < 0.001$ ). Following the training, significantly more people (72.6%) informed they would not consume infected pork as compared to before the training (15.4%) ( $P < 0.0001$ ), an increased negative attitude towards consumption of infected pork.

**Conclusion:** These findings indicate the usefulness of health education in the control of *T. solium* infections in endemic areas. Further studies are needed to determine optimal frequency, schedule, and coverage of health education intervention for national or regional control of the parasite. Combined interventions are recommended for ultimate elimination of *T. solium* in Tanzania.

#### PO1.38

##### A Method to Detect *Toxoplasma gondii* DNA in Fresh Pork Sausage

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A DNA extraction protocol followed by a nested PCR to detect *Toxoplasma gondii* from samples of fresh sausage has been set to use for screening samples taken in local butcher shops. The PCR is targeting the rRNA locus with the first primers amplifying the intergenic region between 18S and 25S rRNA gene. The nested primers amplify specifically the internal transcribed spacer 1 (ITS1) region. By this method from 2 grams of fresh sausage spiked with a serial dilution of *T. gondii* DNA a positive signal could be detected up to 5 pg of DNA in the sample. Toxoplasmosis can be spread by ingestion of contaminated food and water. In a European multi-centre analysis, fresh sausage consumption was reported as one of the major cause for toxoplasmosis transmission in Italy. Infections are quite often asymptomatic but they can be particularly severe when the primary infection occurs during pregnancy (congenital toxoplasmosis) and in cases of immuno-depression. Seroprevalence from 20 to 80% is observed worldwide in both humans and animals depending on age, life style, hygienic conditions. In a previous serological survey in Sicilian sheep flocks a peak up to 65% of positive results have been reported but an ongoing serological screening on swine reveals, so far, positive results to a maximum of 19%. Since the tasting of fresh raw pork sausage is a quite spread habit among Sicilian consumers, even low seroprevalence can represent a high risk factor for the transmission of toxoplasmosis.

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