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The XIV European Multicolloquium of Parasitology

Wrocław, Poland
August 26–30, 2024

Abstracts

[PS1]

Plenary session I

[PS2]

Plenary session II

In summary, our findings suggest that *Al. sativum* and *Ar. absinthium* are promising alternatives to commercially available antiparasitic drugs, offering natural options for treating digestive parasites in swine.

The research was supported by the PPILOW project. The PPILOW project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°816172.

Keywords: *Allium sativum*, *Artemisia absinthium*, free-range farm, antiparasitic effect

PS – poster session

Session: [SE10] Parasite infections in livestock and their control

Detection of *Sarcocystis* species infecting domestic animals in Lithuanian livestock farms

Agnė Baranauskaitė, Petras Prakas, Elena Servienė, Živilė Strazdaitė-Žielienė

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Abstract

Members of the genus *Sarcocystis* are single-celled protists found in the natural environment that infect vertebrates, including humans. Parasites can enter the animals' bodies with food or water contaminated with sporocysts, therefore their monitoring is not only relevant for economic losses but for public health too. However, little is known about the distribution of these parasites in the environment. The aim of the study was to evaluate the prevalence of *Sarcocystis* parasites infecting livestock from environmental samples using a molecular-based method.

During the summer of 2023, water, hay, and soil samples were collected from twelve farms located throughout Lithuania. Samples of water and hay were concentrated using filtration method prior genomic DNA extraction, while soil samples were used for direct isolation of genomic DNA. Eight species infecting domestic animals were selected for detection using nested PCR targeting *cox1* gene.

The highest prevalence of *Sarcocystis* spp. was found in the hay (35%) and water (33%) samples, while the lowest number was detected in samples from soil (11%). Even though three (42%) different species were usually identified in individual farms, as many as six different species were found in one of them (8%). The most common *Sarcocystis* species in livestock farms were cattle-infecting *S. cruzi* (64%), less frequently identified in samples were *S. bovifelis* (31%), and *S. capracanis* (31%). Meanwhile, sheep-infecting *S. tenella* (6%) was the least detected, and cattle-infecting *S. hirsuta* was not detected at all.

Considering the obtained results, these parasites seem to be extremely common on some farms, posing a risk to animals, and potential consumers. Therefore, routine examinations on livestock farms and the detection of *Sarcocystis* are important to prevent animals and humans from becoming infected with these parasites.

This project has received funding from the Research Council of Lithuania (LMTLT), agreement No S-MIP-23-7.

Keywords: *Sarcocystis*, environment, molecular methods

PS – poster session

Session: [SE10] Parasite infections in livestock and their control

Calendula officinalis and *Satureja hortensis*, effective natural remedies for treating digestive parasitosis in pigs (*Sus scrofa* ssp. *domesticus*)

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Abstract

Parasitic diseases are found all over the world in humans and animals. Parasitic infections affect pig production and cause economic losses, especially for farmers and organic producers.

The objective of this study was to evaluate the effectiveness of *Calendula officinalis* and *Satureja hortensis*, in combating naturally occurring digestive parasitosis in swine, from a free-range farm in Cluj county, Romania.

The experimental protocol lasted for 60 days. The mentioned plants were administered for ten consecutive days (100 mg/kg bw/day of *S. hortensis* and 140 mg/kg bw/day of *C. officinalis* powders), followed by sample collections on days 14th and 28th. In total of 180 fecal samples were obtained from weaners, fatteners, and sows. The parasitic burden and identification were obtained by using sedimentation, flotation, McMaster, modified Blagg, and modified Ziehl-Neelsen methods.

The examination of the samples resulted in the identification of *Eimeria* spp., *Balantioides coli*, *Ascaris suum*, and *Trichuris suis* infections. The antiprotozoal and anthelmintic effects increased by day 14, and reached maximum therapeutic effect by day 28.

The findings of this study suggest that *C. officinalis* and *S. hortensis* are promising natural alternatives for antiparasitic medication for treating gastrointestinal parasites in swine.

The research was supported by the PPILOW project. The PPILOW project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement N°816172.

Keywords: *Calendula officinalis*, *Satureja hortensis*, Romania, free-range farm, antiparasitic effect

PS – poster session

Session: [SE10] Parasite infections in livestock and their control

Echinococcus spp. circulating in livestock in Serbia

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Abstract

The echinococcosis case burden in the human population of Serbia is among the highest in Southeastern Europe, but comprehensive data on the circulating tapeworm species is scarce. To gain insight into the population genetics of *Echinococcus* spp. in Serbia, the project WORM_PROFILER will collect samples from livestock intended for human consumption at major abattoirs, slaughterhouses and homesteads over the next two years. During the first two months of sampling, 22 livers from pigs (n=15), lambs (n=5) and calves (n=2) with clearly identifiable cysts and/or cyst-like formations as well as scar tissue were collected from major abattoirs around the country. The cyst content and/or affected area was sampled by direct isolation using pipette tips and/or excision of the tissue and analyzed microscopically, followed by quick DNA extraction by boiling in 0.02 M NaOH for 15 min and amplification of the *cox1* gene using primers which can differentiate *E. granulosus*, *E. multilocularis* and *E. canadensis* via conventional PCR. Several large cysts were present only in the liver of one boar. Tapeworm larvae were microscopically confirmed in the cysts' content and later identified by PCR as *E. granulosus*. PCR analysis additionally revealed the presence of *E. canadensis* gDNA in a tissue sample from another pig from a different farm. Although these results indicate that most carcasses flagged for conditional use based on liver examination by abattoir veterinarians are not infected by *Echinococcus* spp., they nonetheless suggest that pigs may play an important role in its transmission in Serbia.

Sequencing of the *cox1* and *nad1* genes from the samples in which *Echinococcus* spp. gDNA was detected and is currently underway.

This research was supported by the Science Fund of the Republic of Serbia, #10841, Worm Profiler: Surveillance and population genetics of *Echinococcus* in Serbia - WORM_PROFILER.

Keywords: *Echinococcus* spp., livestock, liver, population genetics

PS – poster session

Session: [SE10] Parasite infections in livestock and their control

Parasites in domestic horses: analysis of the regional, age, and seasonal distribution of occurrence of horse parasites in Slovakia

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Abstract

Equids are parasitized by more than 90 helminth species; thus, regular examination of the horse infection is important. We aimed to examine analysis of the regional, age, and seasonal distribution of the main groups of parasites in domestic horses in Slovakia. Faecal samples from 735 horses from 45 farms throughout Slovakia were studied in 2021–2023. Coprological McMaster and Mini-FLOTAC methods were used to examine the infection level (EPG, egg/gram) with Strongylidae nematodes, *Parascaris* spp., *Oxyuris equi*, *Strongyloides westeri*, tapeworms *Anoplocephala* spp., and protozoan *Eimeria leuckarti*.

Strongylid nematodes were found to be the main group of parasites in domestic horses; their prevalence (P) was 60.8%. A low level of infection (<200 EPG) was detected in 19.9% of horses, moderate infection (<200-500 EPG) in 14%, and high infection (>500 EPG) in 26.9%. *Parascaris* were detected in 3.1% of horses presumably of <4 or >15 years old; *O. equi* and *S. westeri* were not detected by both coprological methods. *Anoplocephala* spp. was detected in 0.95% of horses. Cysts of *Eimeria leuckarti* were found in 0.3% of horses. Distribution of horse infection between regions revealed that horses from Western and Eastern regions were most infected with strongylids. No statistically significant differences between strongylid infection levels were observed for horses from Western, Central, and Eastern Slovakia (p>0.05). Young horses (<4 years) were the most infected with strongylids (P=74.7%; 759.4 EPG); foals (<1 year) were the most infected with *parascaris* (P=20.7%; 920.8 EPG); tapeworms *Anoplocephala* spp. were found only in horses >4 years old (P=0.95%; 50 EPG); *Eimeria* cysts were detected only in foals (P=3.5%; 125 cysts/g). Statistically significant differences in prevalence and levels of horse infections with strongylids and *parascaris* were observed between seasons (p<0.05).

The study was funded by EU NextGenerationEU No. 09I03-03-V01-00015 and VEGA 2/0090/22.

Keywords: horse, parasites, coprological methods, prevalence, seasonal distribution

PS – poster session

Session: [SE10] Parasite infections in livestock and their control

Anticoccidial effect of *Tanacetum vulgare* extract lyophilizate in naturally infected lambs with *Eimeria* spp.

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Abstract

Eimeriosis is one of the common parasitosis in young animals, especially lambs. It causes significant economic losses in sheep farming. In addition, the resistance of various drug groups, including anticoccidial drugs, is relevant nowadays. One of the another anticoccidial control strategy could be phytotherapy. The aim of the study is to find out the anticoccidial effect of *T. vulgare* extract lyophilizate in lambs.

A total of 24 Latvian dark head breed lambs aged 4-5 months, tested positive for *Eimeria* spp. infection were selected and randomly divided into four groups (A, B, C, D) of 6 animals in each group. Group A, B were administered intraruminal boluses containing lyophilizate of *T. vulgare* extract in different compositions. Group C was received pallets of the same extract and group D was negative control. The research was conducted under the approval of the Committee for the Protection of Animals Used for Scientific Purposes of the Food and Veterinary Service of Republic of Latvia (No. 143/2023, 08.06.2023). Faecal oocyst counts were performed on 0 day, 14 days, 28 days, 42 days and 56 days and was calculated faecal oocyst count reduction.

The intraruminal bolus groups had stronger anticoccidial effect than the pallets group. The mean faecal oocyst reduction on 56 days were 85% (group A), 92% (group B), 72% (group C). On the other hand, the strongest efficiency was in group B, whose results are equivalent to the negative control group (93%).

The obtained results show that *T. vulgare* extract has no pronounced anticoccidial effect and it would be necessary to investigate the effect of the others factors on *Eimeria* spp. in this study.

The project is supported by Ministry of Agriculture of Latvia and the Rural Advisory Service of Latvia, project No. 22-00-A01612-000007 "Production of medication form of extract from tansy leaves, Latvian traditional medicinal herb, and its impact on microbiot of sheep digestive tract and antiparasitic control".

Keywords: anticoccidial, tansy, sheep

PS – poster session

Session: [SE10] Parasite infections in livestock and their control

Molecular detection of parasites in fecal DNA of Polish Konik horses

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Abstract

The Polish Konik horse is a breed of horse that originated as a result of a project initiated in Poland in the 1920s with the specific aim of recreating horses that resembled tarpans. The objective of this study was to estimate the prevalence of intestinal microparasites and nematodes in Polish Konik horses based on fecal samples using molecular methods. The study of Polish Konik horses was conducted at two stud farms with different management strategies in two provinces of Poland: the Warmian-Masurian province (Papielno Research Station) and the Podlasie province (Biebrza