

From scientific life

Scientific conference "The environment and human and animal health and welfare"

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The scientific conference 'The environment and human and animal health and welfare' took place on 11 June 2021. It was organized by the Szczecin branch of the Polish Parasitological Society, the Committee on Animal Sciences and Aquaculture of the Polish Academy of Sciences, the West Pomeranian University of Technology, the University of Szczecin, the Pomeranian Medical University in Szczecin, the Poznan University of Physical Education, and the Warsaw University of Life Sciences. Due to the risk of COVID-19, the conference was held online using MS Teams. A total of 139 individuals from 16 research centres took part in the conference.

The conference was combined with a farewell to retiring members of the Szczecin branch of the Polish Parasitological Society: Professor Aleksandra Balicka-Ramisz of the West Pomeranian University of Technology in Szczecin, Professor Małgorzata Pilecka-Rapacz of the University of Szczecin, and Professor Lidia Kołodziejczyk of the Pomeranian Medical University.

The conference offered the opportunity to become acquainted with scientific studies in the field of animal husbandry, the natural sciences, and medicine, prepared and presented by speakers from ten research centres.

From the start of her career, Professor Aleksandra Balicka-Ramisz was primarily interested in veterinary parasitology and the prevention of certain environmental diseases. She focused on issues of great practical and economic importance for animal production. The subjects of

her scientific output include research on the role of foxes and dogs in transmitting zoonotic diseases, prevention of diseases in farm animals, parasites of free-living animals, selenium concentrations in farm animals, the economic consequences of parasitic diseases in animals, and research on new biological preparations used in raising and breeding domesticated animals.

Professor Aleksandra Balicka-Ramisz is the author or co-author of 449 publications. She has taken part in numerous scientific conferences in Poland and abroad.

Professor Małgorzata Pilecka-Rapacz from the University of Szczecin focused her research on issues associated with the aquatic environment and the relationship between the macrobenthos and parasites of aquatic vertebrates, mainly fish. Subsequently she began parasitological research on the Ranidae family. In the vicinity of Jarosławiec, she discovered outbreaks of epizootic disease induced by *Glugea danielowskyi*, a protozoan previously unrecorded in Poland. In the Drawskie Lakeland she identified a metacercaria of *Codonocephalus* sp., whose definitive host is the Eurasian bittern, a bird living in polluted environments, which means that this parasite can, indirectly, serve as an environmental bioindicator. Next, she worked on determining the dynamics of helminth infection of sea trout (*Salmo trutta m. trutta* L.) and Atlantic salmon (*Salmo salar* L.) of Pomerania during the life cycle of these fish. Novel elements of this research were first description of the variation in helminth communities of the



Photo 1. Announcement of the results of the competition for students, student science clubs and PhD candidates for the best poster during the nationwide scientific conference 'The environment and human and animal health and welfare' (in the photo: Professor Renata Pilarczyk of the West Pomeranian University of Technology, Chair of the Jury of the Young Scientists competition). Photo credit: Professor Bogumiła Pilarczyk



Photo 2. On-line proceedings of the nationwide scientific conference 'The environment and human and animal health and welfare'. Photo credit: Professor Bogumiła Pilarczyk



Photo 3. Participants in the scientific conference ‘The environment and human and animal health and welfare’ (from left: Professor Małgorzata Pilecka-Rapacz, Professor Lidia Kołodziejczyk, Hanna Namięta, Professor Bogumiła Pilarczyk, Karolina Kot, MD). Photo credit: Professor Józef Domagała

digestive tract of these fish, during their complete life cycle, depending on their age. Second description of helminths in a new population of Atlantic salmon following their introduction to Polish rivers; and the identification of helminths new to Poland in sea trout (six species) and Atlantic salmon (eight species). The research she took part in was of practical importance as well, as it involved assessment of fish reserves and the possibility of increasing their populations, including European

eel, twait shad, and especially salmonids.

Professor Małgorzata Pilecka-Rapacz of the University of Szczecin is the author or co-author of over 120 publications (including 27 monograph chapters). She has taken part in 63 conferences in Poland and 14 abroad, and co-organized six Polish conferences. She completed several internships abroad and worked together with employees of the Institute of Ecology of Vilnius University, the Sea Fisheries Institute in Klaipėda, Saint Petersburg State University, GosNIORH in St. Petersburg, and the Institute of Biology of the Russian Academy of Sciences in Petrozavodsk.

The key directions in the scientific research activity of Professor Lidia Kołodziejczyk are associated with research in experimental, clinical and environmental parasitology, as well as toxicology. Her research mainly concerns pathophysiology in the parasite-host system in experimental models, the embryonic development of flukes and roundworms, and how it is influenced by environmental factors. It also deals with the occurrence of infections by opportunistic pathogens in humans, the role of saprotrophic soil fungi in the bioregulation of parasitic geohelminths, and the toxicity of fluorine compounds in experimental models.

At the start of her scientific activity, Professor



Photo 4. Proceedings of the nationwide scientific conference ‘The environment and human and animal health and welfare’ (in the foreground of the photo: Karolina Kot, MD, Professor Małgorzata Pilecka-Rapacz, Professor Józef Domagała). Photo credit: Professor Bogumiła Pilarczyk



Photo 5. Proceedings of the nationwide scientific conference ‘The environment and human and animal health and welfare’ (in the foreground of the photo: Professor Aleksandra Balicka-Ramisz, Anna Ramisz, Professor Lidia Kołodziejczyk, Hanna Namięta). Photo credit: Professor Bogumiła Pilarczyk

Lidia Kołodziejczyk conducted histochemical tests of the activity of specific and non-specific phosphatases during the embryonic development of the fluke *Fasciola hepatica* and the activity of selected redox enzymes in the embryogenesis of dog roundworm (*Toxocara canis*). Subsequent research resulted in papers devoted to changes in the activity of respiratory enzymes in the tissues of the fluke *Fasciola hepatica* and in the liver of the experimental host *Mus musculus*. The results indicated that the host's compensatory reaction in the form of increased respiratory metabolism is associated with the intensity of infection, while changes in the intensity of histochemical reactions of respiratory enzymes in the parasite's tissues are associated with its biotope in the host. Next, she undertook research on the effect of experimental fasciolosis on the antioxidant system and protease/antiprotease balance in rats. Oxidative stress was shown to be an important factor in the pathomechanisms of fasciolosis, because oxidative damage to proteins and lipids in the course of this parasitosis leads to modifications in their structure and functions and to changes in cellular metabolism, and in consequence they may mediate systemic disturbances in the host metabolism.

Professor Kołodziejczyk's scientific output

includes over 50 full-text papers in peer-reviewed Polish and foreign journals, as well as conference reports from 36 Polish and conferences and six from conferences held in other countries.

A Session of Student Science Clubs and a Session of Young Scientists took place during the conference. A competition for the best presentation of scientific research results (poster) was held at both sessions. There were 20 studies presented in the Session of Student Science Clubs and 12 in the Session of Young Scientists. A jury decided on awards and honourable mentions at each of the sessions. All works by participants in the conference were published in the conference materials in the form of a book of abstracts.

The works presented by the participants in the conference were related to the concept of One Health, diagnostics and treatment of parasitic diseases in humans and animals, human and animal welfare, environmental aspects of health and welfare, and the use of the latest achievements in molecular biology.

The conference was an occasion for exchanging experiences and promoting cooperation between research centres representing various scientific disciplines in Poland.