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Pigs and wild boars are intermediate hosts of two protozoan *Sarcocystis* species, zoonotic *S. suihominis* and *S. miescheriana*, which form sarcocysts in the muscles of infected animals. However, recent data suggest that pigs and wild boars may serve as intermediate hosts for at least three *Sarcocystis* species. Humans become infected by consuming raw or undercooked meat and may experience various intestinal disorders due to *S. suihominis* infection. In Lithuania, the prevalence of *S. suihominis* is currently unknown. Moreover, there is a global lack of molecular studies addressing the species composition of *Sarcocystis* in pigs and wild boars. This study aims to establish the prevalence, infection density, and species diversity of *Sarcocystis* spp. in pork and wild boar meat using both microscopic and molecular methods. The project will also evaluate whether wild boars can act as definitive hosts for Sarcocystis spp., and this hypothesis has not yet been tested globally. For the first time, *S. suihominis* will be comprehensively characterized using nuclear, mitochondrial, and apicoplast genetic markers. Expected outcomes of the project include the first detailed data on *S. suihominis* in Lithuanian pigs and wild boars, improved species-level diagnostics, a potential description of a new *Sarcocystis* species, and new insights into the epidemiological role of wild boars. These findings will be important for improving diagnostic standards and ensuring food safety.