Study on food safety of origin and game meat at Japan

Abstract of Doctoral Thesis

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In recent years, when cooking and processing derived from Game meat, correct knowledge of zoonotic diseases such as food poisoning bacteria, parasites that cause symptomatic complaints, Hepatitis E and Severe Febrile Thrombocytopenia Syndrome are required, and the need for research on the food safety of meat derived from wild birds and animals (from Japan) is increasing. Therefore, in this study, focusing on the genus *Sarcocystis*, a *Prozoa* :*Apicomplexa* that parasitizes in the deer meat of Japanese deer, which has relatively few research reports, we re-evaluated the safety of food by resistance experiment of *Sarcocystis* and examined the detection sensitivity of pathogenic bacteria adapted to the prevention of the occurrence of food poisoning.

Chapter 2 examines the resistance of *Sarcosisis fayeri,* a parasite that causes diarrhea symptoms in humans by eating raw-horse meat stings and the like, and since there have been reports of cases similar to raw-horse stings in deer meat, *Sarcocystis*

Resistance was examined using storage, heating, refrigeration, freezing, salting, and acid and alkaline treatment as indices. As a result, it was inactivated at −20 °C for 2 hours, −30 °C for 1 hour, and −80 °C for 1 hour under freezing conditions, survived for 7 days (168 hours) at 0 °C and 4 °C,

and was inactivated at 70 °C for 1 minute and 65 °C for 3 minutes under heated conditions, and only 30% inactivity was confirmed at 55 °C for 3 minutes.

It was also confirmed by the analysis of *Sarcocystis* diarrheal toxin (15 kDa protein) using the stun blotting method. In the salt storage, inactivation was confirmed in 24 hours with 6% salt and 2% coloring agent, and with 2.5% salt and 0.25% coloring agent. The above results were able to present certain conditions for the treatment of deer meat based on scientific grounds for the prevention of food poisoning by *Sarcocystis* parasites.

In Chapter 3, Salmonella and Listeria were experimentally added to commercially available prosciutto and deer meat, and direct testing and sterilization at 37 °C were compared using commercially available detection reagent kits using the LAMP method and the RT-qPCR method. As a result, it was revealed that the detection sensitivity of the sterilization test method was better than that of the direct test method under this experiment. In addition, in the RT-qPCR method and the LAMP method, the detection sensitivity was high in this experiment by the LAMP method. In addition, if the sterilization test is applied, both methods seem to be effective because bacteria can be sufficiently detected even by the RT-qPCR method. The above

results have presented a certain level of knowledge that can contribute to the field of veterinary health nursing in considering the food safety of wild birds and be Game meat (from Japan), such as deer meat. In the future, it was thought that it would be necessary to investigate the relationship between the number of bacteria and harmful symptoms based on this research.