



Detection of *Toxoplasma gondii* antibodies in swine herds in Québec, Canada

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Abstract

Toxoplasmosis is a disease caused by *Toxoplasma gondii*. In human being, foodborne contamination is mostly associated to consumption and manipulation of raw or undercooked meat, unwashed vegetables and fruit or drinking water contaminated by oocysts. In Canada, very few recent prevalence studies are available to evaluate the human exposure to *T. gondii* by meat products. Using data from other countries, preliminary analysis indicated that the disease burden associated to this parasite is among the highest. Swine has been identified as a *T. gondii* reservoir in some countries. The objective of this study was to estimate prevalence of *T. gondii* in selected Québec pig herds by serology using the PrioCHECK *Toxoplasma* Ab porcine-ELISA kit. Farms were selected from an integrated swine company in Québec province and were issued from 3 different production pyramids associated to distinct sanitary status in order to assess the level of *Toxoplasma* antibodies. Pig blood samples from these 3 farms were collected at slaughterhouse. A total of 250 samples were collected from each farm. A total of 10 sera were used for the validation steps and 240 samples were tested to establish the status of each farm. Sera samples were frozen (-20 °C) in aliquots until use. A total of 720 samples from 3 farms (240 samples per farm) were analyzed following the instructions in the ELISA kit package insert. Results demonstrated a good reproducibility intra-plate, inter-plate and between days of analysis. A very low prevalence of *T. gondii*, ranging from 0 to 0,4%, was detected in the 3 selected farms. This result was consistent with our expectations considering the good control of risk factors associated with the presence of *Toxoplasma* in these farms. Indeed, although associated to various disease status, these farms followed very strict biosecurity protocols and therefore no contact with natural vectors (cats, rodents) was possible.