

Summary of the MSc thesis No., Faculty of Veterinary Medicine, Urmia University.

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Title: Molecular detection of *Brucella* and *Campylobacter* in beef of Mahabad city by Nested-PCR method

Summary;

Campylobacter is one of the most common causes of bacterial gastroenteritis in the world. Brucellosis is one of the most important zoonotic diseases. The present study was carried out in order to trace *Campylobacter* and *Brucella* genomes in beef samples collected from butchers in Mahabad city. 50 meat samples were collected from butchers in Mahabad city. Sampling was done during 2023 (from the beginning to the end of the year) and the amount of each sample was 100 grams. Bacterial genomic DNA was extracted from meat samples using a commercial kit, and the *16S rRna* gene was used to detect *Campylobacter* and *Brucella* by nested polymerase chain reaction (Nested-PCR). In this study, *Campylobacter* primers and Nested-PCR primers were designed with Amplifx software. The results showed that out of 50 beef samples that were examined, 6 samples (12%) were infected with *Campylobacter* bacteria and also 4 samples (8%) were infected with *Brucella* bacteria. Based on the obtained results, beef can be infected with *Campylobacter* and *Brucella* bacteria in Mahabad. According to the results of this study, the genomic contamination of *Campylobacter* and *Brucella* bacteria is present in beef samples from butchers in Mahabad areas. Also, the results indicate that beef can be an important source of *Campylobacter* and *Brucella* in mahabad region. For the molecular detection of *Campylobacter* and *Brucella*, nested polymerase chain reaction method can be used in meat samples as an easy and reliable method to detect the mentioned bacteria. Eventually; The present study showed that beef can play an effective role in the epidemic and spread of *Campylobacter* and *Brucella* in mahabad. The relatively high prevalence of *Campylobacter* in beef confirms this order of animals as reservoirs of *Campylobacter*, and as a result, these animals can be the most important sources of contamination for humans in the country and regions under study, which indicates the necessity of conducting more studies in wider cases. Also, using appropriate solutions to control and prevent the disease seems to be a helpful solution.

Key words: *Brucella*, *Campylobacter*, Nested-PCR, mahabad