MICROBIAL CULTURE COLLECTION AT EMBRAPA SWINE AND POULTRY: PROMOTING BASIC RESEARCH ON THERMOPHILIC *CAMPYLOBACTER* IN CHICKEN MEAT

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Brazilian culture collections play a critical role as sources of microorganisms for national scientific research. The microbial culture collection at Embrapa Swine and Poultry (CMISEA) has been preserving bacterial strains to promote the knowledge on avian health, including food safety issues. Today, thermophilic *Campylobacter* species are a leading cause of bacterial foodborne disease worldwide. The consumption of contaminated raw or undercooked chicken is associated with the majority of human campylobacteriosis cases. However, it is believed that refrigerated storage might reduce the number of viable *Campylobacter* cells in contaminated chicken at retail and domestic level. Therefore, this study aimed to describe the isolation of chicken-related thermophilic *Campylobacter* strains preserved at the microbial collection and the use of these strains to study the effect of refrigeration on the survival of *Campylobacter* in raw chicken. A total of 78 trays of fresh chicken portions packed on the same or previous day of sampling were obtained from local stores in southern Brazil from 2012 through 2015. At the laboratory, samples were analyzed using qualitative or quantitative bacteriological techniques. At least one presumptive *Campylobacter* colony was subcultured from each plate of selective bacteriological agar and further characterized by standard morphological and biochemical procedures. In total, 56/78 (71.8%) samples were found to be thermophilic *Campylobacter*–positive. A subset of 33 *C. coli* and 58 *C. jejuni* isolated strains were preserved in the culture collection. One *C.* coli strain was selected for analysis of survival in refrigerated chicken samples. Chicken pieces (2 by 2.5 cm^2) cut from drumsticks that previously tested negative for thermophilic *Campylobacter* were inoculated with an aliquot of *C. coli* suspension to give a final concentration of approximately 10^7 CFU/g based on the weight of each piece. Samples were analyzed after 0, 24 and 72 h of storage at 6°C (±1°C). Counts of *Campylobacter* on chicken pieces were determined by rinsing individual samples with 10 mL of 0.1% buffered peptone water, homogenized in a stomacher for 1 min and further serially diluted and plated onto modified charcoal cefoperazone deoxycholate agar. Plates were incubated at 41.5°C for 44 h (±4 h) in microaerobic atmosphere. The number of *C. coli* was expressed per milliliter of chicken piece rinses. In total, six replicates were carried out for each given time interval. The results revealed that refrigerated storage produced a slight reduction in *C. coli* from 5.38±0.06 to 4.92±0.13 $\log_{10}$ CFU/mL on chicken pieces over a 3-days period, although there was no significant difference at a given day. These findings indicate that refrigerated storage was not able to significantly reduce or eliminate *C. coli* from chicken meat samples, suggesting that special attention should be taken for consumer education, with focus on safe handling and proper cooking of chicken. Further studies on *Campylobacter* survival in chicken at different temperatures will be conducted at Embrapa Swine and Poultry with other preserved strains from the same microbial collection.