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DETERMINATION OF SALMONELLA PRESENCE IN BROILER INTERNAL EDIBLE ORGANS BY ISO 6579-1:2017 AND *SALMONELLA*-SPECIFIC REAL-TIME PCR

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- ✓ Salmonella
- ✓ Broiler
- ✓ Edible internal organ
- ✓ ISO 6579-1 :2017
- ✓ Real-time PCR

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THESIS ABSTRACT

The study aimed to identify the species and serotype of Salmonella isolated from edible organs (liver, heart, spleen, and gizzard) of broilers, packaged before shipment from a poultry slaughterhouse, using the international methods ISO 6579:2017-1 and ISO 6579:2014-3. Additionally, the study aimed to evaluate the method's effectiveness by confirming the results with Salmonella-specific real-time PCR (Salm-PCR) and S. Enteritidis and S. Typhimurium-specific r-PCR (SE/ST-PCR). The overall prevalence was found to be 95.00% (57/60), and Salm-PCR confirmed that all isolates (100%) were Salmonella. The most prevalent serovar in the samples was S. Virchow (80.70%), followed by S. Enteritidis (19.30%). High relative accuracy (98.25%), sensitivity (100.00%), and specificity (100.00%), as well as strong agreement between the methods (κ: 0.94), indicated that SE/ST-PCR could be used as an alternative to conventional serotyping for SE/ST detection.

APPLICATION AREAS OF THE THESIS RESULTS

The study's findings on the high prevalence of Salmonella detected in edible organs of broilers from a slaughterhouse are original and significant for public health. These data were determined using an international reference bacteriological method, which is the first to detect this pathogen with the highest sensitivity and specificity. Additionally, the detection of S. Virchow as the dominant serovar, the relatively low prevalence of S. Enteritidis, and the absence of S. Typhimurium in any samples are expected to provide unbiased data for both national and international literature and regulations regarding the current serovar information circulating in the poultry industry.

ACADEMIC ACTIVITIES

***RESEARCH ARTICLES**

1. Akgun, Z., Coskun, A. G., Cetin, E., Temelli, S., & Eyigor, A. (2024). Salmonella Carriage and Change in Serovar Distribution in Broiler Giblets at Slaughterhouse Level in Turkiye: First Report Using ISO 6579-1: 2017 and ISO 6579-3: 2014. Poultry Science, 103805.