
CARPATHIAN JOURNAL OF FOOD SCIENCE AND TECHNOLOGY

journal homepage: **http://chimie-biologie.ubm.ro/carpathian_journal/index.html**

QUANTITATIVE DETERMINATION OF PORK MEAT RESIDUE IN CATTLE MEAT MIXTURES USING DROPLET DIGITAL PCR

Nursel Söylemez Milli[1], Ömer Eren[2], Gülsüme Bıçakcı[2], Aydın Erge[3] ✉

[1]*Bolu Abant İzzet Baysal University, Scientific Industrial and Technological Application and Research Center, Gölköy Campus, Bolu/TURKEY*

[2]*Bolu Abant İzzet Baysal University, Faculty of Engineering, Food Engineering Department, Gölköy Campus, Bolu/TURKEY*

[3]*Bolu Abant İzzet Baysal University, Faculty of Agriculture, Poultry Science Department, Gölköy Campus, Bolu/TURKEY*

✉ *aydin.erge@ibu.edu.tr/ https://orcid.org/0000-0001-7419-4221*

https://doi.org/10.34302/crpjfst/2023.15.4.9

Article history:
Received: 6 April 2023
Accepted: 6 December 2023

Keywords:
Species identification;
Droplet digital PCR;
Authentication;
Quantification;
Pork meat.

ABSTRACT

Meat adulteration is an important economic and social problem worldwide. Therefore, the accurate identification and quantification methods for species substitutions in meat products are needed. In this study, a precise quantitative method was performed to identify the minimum content of pork (*Sus scrofa*) meat in the mixture of pork: cattle (*Sus scrofa :Bos taurus*) using the droplet digital Polymerase Chain Reaction (ddPCR) method. Experiments were conducted by using a series of dilutions for heat-treated and raw meat mixtures. The detection limits in DNA fragments of this study were 0.65 copies/µL for heat-treated and 0.1 copies/µL for raw meat samples. Based on these results, the sensitivity explaining minimum pork meat in meat mixtures was 0.1% for heat-treated and 0.001% for raw samples. The results showed that the ddPCR method is effective for identifying and quantifying pork meat in meat products and has potential to be applied for other meat species also.