REPETITIVE ELEMENT SEQUENCE-BASED PCR TYPING FOR IMPROVED DISCRIMINATION OF *CAMPYLOBACTER JEJUNI*

Mindaugas Malakauskas[1,*], *Alvydas Malakauskas*[3], *Henrik Christensen*[2], John Elmerdahl *Olsen*[2], *Carl Henrik Brogren*[4]

[1]*Department of Food Safety and Quality, Faculty of Veterinary Medicine, Veterinary Academy, Lithuanian University of Health Sciences, Tilžės str. 18, LT-47181, Kaunas, Lithuania*
[2]*Department of Veterinary Pathobiology, Faculty of Life Sciences, University of Copenhagen, Groennegaardsvej 15, DK-1870 Frederiksberg C, Denmark*
[3]*Department of Veterinary Pathobiology, Faculty of Veterinary Medicine, Veterinary Academy, Lithuanian University of Health Sciences, Tilžės str. 18, LT-47181, Kaunas, Lithuania*
[4]*Department of Biomedical Sciences, Faculty of Health Sciences, University of Copenhagen, Blegdamsvej 3, DK-2200 Copenhagen N, Denmark*

[*]*Corresponding author: Mindaugas Malakauskas*
Lithuanian University if Health Sciences, Tilzes str. 18, 47181, Kaunas, Lithuania
Phone/fax: +370 37 362 695; e-mail: mindaugas.malakauskas@lsmuni.lt

Abstract. The aim of our studies was to evaluate rep-PCR typing using different primers as a fast genotyping method for discrimination of *C. jejuni*. Also a microfluidic electrophoretic DNA separation method for rapid DNA fingerprinting based on Lab-on-a-Chip technology was tested.

Based on the test results, the single polytrinucleotide $(GTG)_5$ was chosen as primer. Nine strains representing three epidemiological groups from the CAMPYNET network strains were assigned to three different groups by both $(GTG)_5$-PCR and PFGE. Typing of 72 epidemiologically independent strains using $(GTG)_5$-PCR and PFGE clustered the strains in 60 and 53 clusters, respectively, with an identical discriminatory power (D=0,99). When PCR-products were separated on the Agilent 2100 Bioanalyzer Lab-on-a-Chip device the strains were grouped with the same discriminatory power, though some strains were clustered differently compare to gel-based DNA amplicon separation. The main disadvantage of $(GTG)_5$-PCR typing was differences in band intensity that complicates comparison of $(GTG)_5$-PCR fingerprints when numerous strains are evaluated. The advantages of rep-PCR based subtyping were rapidity, simplicity, similar discriminatory power to PFGE and possible rapid DNA amplicon separation based on Lab-on-a-Chip technology with Agilent 2100 Bioanalyzer.

Keywords: *Campylobacter*, rep-PCR, genotyping.