A PCR-DGGE method for detection and identification of Campylobacter, Helicobacter, Arcobacter and related Epsilobacteria and its application to saliva samples from humans and domestic pets - DTU Orbit (01/01/2019)

**A PCR-DGGE method for detection and identification of Campylobacter, Helicobacter, Arcobacter and related Epsilobacteria and its application to saliva samples from humans and domestic pets**

**Aims:** To develop a PCR-denaturing gradient gel electrophoresis (PCR-DGGE) method for the detection and identification of Campylobacter, Helicobacter and Arcobacter species (Epsilobacteria) in clinical samples and evaluate its efficacy on saliva samples from humans and domestic pets. **Methods and Results:** A semi-nested PCR was developed to allow sensitive detection of all Epsilobacteria, with species separation undertaken by DGGE. A database was constructed in BioNumerics using 145 strains covering 51 Campylobacter, Arcobacter and Helicobacter taxa; Nineteen distinct DGGE profile-groups were distinguished. This approach detected Epsilobacteria in all saliva samples collected from humans, cats and dogs, and identified Campylobacter concisus and/or Campylobacter gracilis in the human samples. The pet animal samples were taken from individuals with oral/dental diseases; PCR-DGGE identified up to four different species in each sample. The most common species detected included Wolinella succinogenes, Arcobacter butzleri and two hitherto uncultured campylobacters. The enteropathogen Campylobacter larri was also found. **Conclusions:** PCR combined with DGGE is a useful tool for direct detection and preliminary identification of Epsilobacteria in the oral cavity of humans and small animals. Significance and Impact of the Study: The PCR-DGGE method should allow determination of the true prevalence and diversity of Epsilobacteria in clinical and other samples. Contact with the oral cavity of domestic pets may represent a route of transmission for epsilobacterial enteric diseases.

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