



Dottorato di ricerca in Scienze Veterinarie XXXIII CICLO - Anno di corso: 1°

Dott.ssa Prandini Laura Curriculum: Produzioni Animali e Sicurezza Alimentare

Supervisor: Prof.ssa Federica Giacometti Cosupervisor: Dott.ssa Federica Savini

Food Safety: use of MALDI-TOF MS for bacterial typing and rapid identification of antibiotic resistance for the genus *Campylobacter*

Objectives:

- I) Building a database of spectra for different *Campylobacter* species, and clonal complexes from different sources;
- II) Typing of *Campylobacter* strains and analysis of their antimicrobial resistance using MALDI-TOF MS

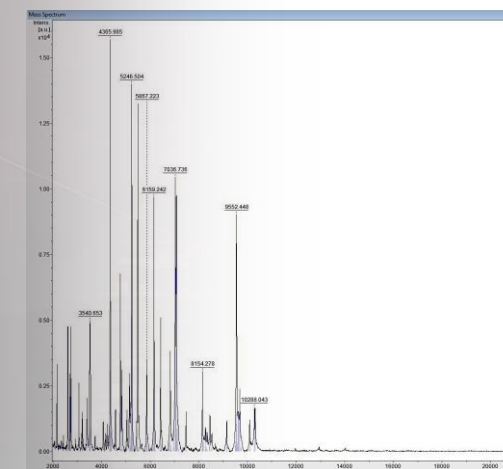
Materials and Methods: *Campylobacter* spp. strains collection of human and animal origin, MALDI-TOF MS and Artificial Intelligence

Results: The "fine-tuning" phase of the project has been completed, the experimental phase is in process

Conclusions: MALDI-TOF MS sounds as a useful tool for sub-species typing of *Campylobacter jejuni*

Future Proposal: routine use of MALDI-TOF MS for *Campylobacter* typing in epidemiological studies and creation of Web Service

Period Abroad: Luxembourg



References

- I) Feucherolles M, Nennig M, Becker SL, *et al.* Investigation of MALDI-TOF mass spectrometry for assessing the molecular diversity of *Campylobacter jejuni* and comparison with MLST and cgMLST: a Luxembourg One-Health study. *Diagnostics* 2021; **11**:1949.
- II) Feucherolles M, Nennig M, Becker SL, *et al.* Combination of MALDI-TOF mass spectrometry and Machine Learning for rapid antimicrobial resistance screening: the case of *Campylobacter* spp. *Front Microbiol* 2022; **12**:804484.

