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Development of a new qPCR assay for the detection of *Staphylococcus aureus* genotype B (GTB) in cow milk samples

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The specific and reliable diagnosis of mastitis pathogens is essential for successful sanitation programs. The aim of the present study was to develop and evaluate a new qPCR assay for the very sensitive and specific detection of *Staphylococcus aureus* genotype B (GTB) in cow milk samples. This mastitis pathogen is contagious and particularly prevalent in Switzerland and other European countries. The new test is based on a rapid preparation of bacteria from milk, followed by DNA isolation and qPCR for a unique target gene. The analytic sensitivity of the new target gene is 97% and the analytic specificity 98.4%, meaning that other genotypes and bacteria can be excluded with high reliability. The limit of detection is 211 staphylococcal cell equivalents (SCE) per milliliter of milk using the quantitative DNA extraction approach and 424 SCE per mL of milk using the simplified approach with bacterial enrichment prior to DNA extraction. The new test shows high intra and inter-assay repeatability. Results are available within 1 day after sampling, allowing to farmers and veterinarians to immediately apply sanitation measures. This new analytical procedure is faster and cheaper than all others currently in use and can be applied with high reliability to both single-cow and bulk tank milk samples. The new test has the potential to be fully automated and soused for routine diagnostics, enabling for the first time the sanitation of whole regions (area-wide approach) for the contagious mastitis pathogen *Staphylococcus aureus* genotype B.

Biography

Carlotta Sartori has studied Agricultural Sciences at ETH Zurich and graduated in 2013. She is currently a PhD student at ETH Zurich under the supervision of Prof. Susanne Ulbrich and Dr. Hans Graber.

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