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DEVELOPMENT OF LOOP-MEDIATED ISOTHERMAL AMPLIFICATION (LAMP) METHOD FOR *BARTONELLA* DETECTION IN BLOOD BANKS

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Bartonellosis are a class of opportunistic bacterial infections transmitted by vectors and typically of a zoonotic nature. They are caused by members of the *Bartonella* genus, which have pleomorphic Gram-negative morphology (usually coccobacilli), hemotropism, intraerythrocytic persistence, and a requirement for slow and fastidious growth conditions. The three most prevalent species in this genus are *Bartonella henselae*, *Bartonella quintana*, and *Bartonella bacilliformis*, with *Bartonella henselae* being the agent responsible for Cat-Scratch Disease (CSD), named after the primary transmission route to humans. Infection with *Bartonella* spp. requires special attention in immunocompromised individuals who may present symptoms ranging from anemia-like to severe manifestations such as endocarditis. Given this scenario, there is a growing awareness of the need for an efficient method to detect *Bartonella* in blood banks, as recipients of blood products are most affected by the infection. In order to propose an efficient solution to this problem, we are standardizing a fluorescent molecular assay using Loop-mediated Isothermal Amplification (LAMP) for the genus-specific detection of *Bartonella* spp. and species-specific detection of *Bartonella henselae*, comparing its efficiency with classical methods of molecular detection (PCR, qPCR) and validating it in different types of samples. Different LAMP primer sets were designed to target both genus and species of *Bartonella*. The sets were tested under various temperature conditions and concentrations of reaction components. The specificity of the reaction was determined using a mini-panel containing genomic DNA from different *Bartonella* species and other Gram-negative Proteobacteria, demonstrating the absence of cross-reactivity. The sensitivity of the optimized method was assessed using serial dilutions of control plasmid and genomic DNA. With the optimized method, the next steps in this work include validating the technique for matrix interference in the final assay, using samples that have undergone genomic DNA extraction, been temperature-inactivated, or directly detected, and evaluating the sensitivity of the method under each condition. Finally, the aim is to validate fluorescent LAMP on a panel of samples of blood donors from HC-UNICAMP Hemocenter and from wild and domestic animals as part of the *Bartonella* sp. prevalence profile in these niches. This is the first study to optimize a LAMP protocol for the detection of the *Bartonella* genus and *Bartonella henselae*, thus proposing an efficient point-of-care method for the detection of these neglected infectious agents.

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