

Rapid detection of pathogenic leptospires by lyophilized reagent-based Polymerase Chain Reaction.

ABSTRACT

A simple and reliable tool for the early diagnosis of leptospirosis is urgently needed. We report the development of a lyophilized reagent-based polymerase chain reaction (PCR) assay targeting lipL32 gene, which is present only in pathogenic leptospires. To determine the effectiveness of the newly developed assay in the early diagnosis of leptospirosis, the sensitivity and specificity was evaluated. In simulated clinical samples, the assay was able to detect 10^2 and 10^3 leptospires/ml in spiked urine and blood samples, respectively. In experimentally infected animals, leptospiral DNA could be detected in blood and lung samples as early as Day 1 post infection. This assay was also shown to be stable and remained sensitive for up to five months at ambient temperature. Hence, this lyophilized reagent-based PCR assay with high specificity, sensitivity and stability would provide a simple, rapid and reliable method in diagnosing acute leptospirosis, especially in the field of veterinary medicine.

Keyword: Pathogenic leptospires; Lyophilized reagent-based; PCR.