

Original Paper

## Rapid detection of *Mycoplasma pneumoniae* by Loop mediated isothermal amplification (LAMP)

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### Abstract

**Background and Objective:** *Mycoplasma pneumoniae* bacteria, is one of the most important factor in causing of respiratory infections. Serological and molecular detection methods have their own limitation. Due to this limitation, the application of these methods in all diagnostic laboratories is not possible. Therefore this study was done to determine the rapid detection of *Mycoplasma pneumoniae* by loop mediated isothermal amplification (LAMP).

**Methods:** In this descriptive laboratory study, nasopharynx samples were collected from 92 patients with atypical pneumonia. DNA sample were extracted by boiling method. Six specific primer pairs were designed for LAMP technique by *primer explorer ver 4* software. LAMP product identified by adding SYBR Green. Limit of detection and specificity tests have been done for optimizing LAMP test and optimized test carry out for each sample.

**Results:** The LAMP test was optimized using the large Bst enzyme fragment at 66 degree temperature for 1 hour. The detection limit of the test obtained 1 CFU and the DNA replication does not observed in non of the examined pathogenic factors. Out of 92 clinical samples using LAMP technique, 73 cases were negative (80%) and 19 cases were positive (20%).

**Conclusion:** The loop-mediated isothermal amplification technique is simple, convenient and available method for detection of *Mycoplasma pneumoniae*.

**Keywords:** Atypical pneumonia, *Mycoplasma pneumoniae*, Loop mediated isothermal amplification

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