

MULTIPLEX PCR FOR DETECTION OF CLARITHROMYCIN RESISTANCE AND SIMULTANEOUS SPECIES IDENTIFICATION OF *MYCOBACTERIUM AVIUM* COMPLEX

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Abstract. Multiplex PCR (mPCR) was established for the simultaneous detection of clarithromycin (CLR) resistance and species identification of *Mycobacterium avium* complex (MAC). mPCR was tested on 218 MAC clinical isolates. CLR-resistance was detected by mPCR in 31 of 35 isolates identified by a microdilution method. Of the remaining 187 susceptible isolates identified by mPCR, 183 isolates had MIC ≤ 8 $\mu\text{g/ml}$ (susceptible), 3 with MIC of 16 (intermediate resistant) and 1 with MIC of ≥ 32 $\mu\text{g/ml}$ (resistant). Comparing with the PCR-restriction enzyme analysis, mPCR concordantly identified 185 isolates either as being *M. avium* or *M. intracellulare*, whereas one isolate was misidentified and 32 isolates could not be identified. Comparing with reference methods, the mPCR showed the sensitivity, specificity, positive predictive and negative predictive value of 89, 100, 100, and 98% for detection of CLR resistance; 92, 98, 99, and 78% for identification of *M. avium*; and 57, 100, 100, and 89% for identification of *M. intracellulare*, respectively.

Key words: PCR, mycobacterium, clarithromycin resistance, *M. avium* complex

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