Multicenter Evaluation of a Newly Developed Microdilution Test to Determine MICs of Antimicrobial Agents for Nontuberculous Mycobacteria.


We developed a new microdilution susceptibility test for nontuberculous mycobacteria to determine MICs. The test method utilized air-dried microplates containing serially diluted antimicrobial agents and the modified Middlebrook 7H9 broth. The nine agents tested were rifampin, isoniazid, ethambutol, streptomycin, kanamycin, levofloxacin, clarithromycin, ethionamide and amikacin. The test plates were reconstituted by inoculation of 0.1 mL of cell suspensions (3 × 10^5 CFU/mL) and were incubated at 36°C. The growth endpoints were visually read after 7-day and 10-day incubations. The reproducibility was evaluated with the three ATCC reference strains of nontuberculous mycobacteria. Of the 963 testings of the ATCC reference strains, 918 (95.3%) of the MICs read after 7-day incubation fell within 3log2 dilutions. A total of 728 clinical isolates of nontuberculous mycobacteria comprising 14 species were tested against nine agents. The MICs against nontuberculous mycobacteria distributed in a wide range, and the activities of rifampin, levofloxacin, clarithromycin were more potent. These results demonstrate this newly developed test method to be a practical, rapid, quantitative means to determine MICs for nontuberculous mycobacteria in clinical laboratories.