A newly developed microdilution antimycobacterial susceptibility test, BrothMIC MTB (Kyokuto Pharmaceutical Industrial Co., Ltd., Tokyo, Japan) to determine minimum inhibitory concentrations (MICs) was evaluated at multisites. The test method utilizes air-dried microplates containing serially diluted antimicrobial agents and the modified Middlebrook 7H9 broth. The eight antimycobacterial agents tested were rifampicin, isoniazid, ethambutol, streptomycin, kanamycin, levofloxacin, sparfl oxacin and ciprofloxacin. The test plates were reconstituted by inoculation of 0.2 ml of cell suspensions (6 × 10⁵ CFU/ml) and were incubated at 36°C in 5% to 10% CO₂. The growth endpoints were visually read after 7-day and 10-day incubations. The reproducibility was evaluated with the four reference strains of Mycobacterium tuberculosis, and were compared with the agar proportion method described in the National Committee for Clinical Laboratory Standards (NCCLS) M24–T. Of the 1,022 testings of the reference strains, 1,020 (99.8%) of the MICs read after 7-day incubation fell within 3 log₂ dilutions. The growth endpoints read after 7-day and 10-day incubations gave equal MIC ranges for the respective agents. The results obtained by the BrothMIC MTB for 100 clinical isolates of M. tuberculosis compared well with those determined by the NCCLS method with 95% to 98% agreements, except for ethambutol. According to the comparative analysis with the agar proportion method, the interpretive MIC breakpoints to discriminate between the isolates susceptible and resistant against the respective agents were proposed. In conclusion, this newly developed microdilution test for M. tuberculosis is a practical, rapid, quantitative, nonradiometric alternative for the determination of MICs in clinical mycobacteriology laboratories.

【Key Words】Broth microdilution test (微量液体希釈法), Middlebrook 7H9 broth (ミドルブルック 7H9 液体培地), antimycobacterial susceptibility test (抗酸菌薬剤感受性試験), interlaboratory precision (施設間再現性), interpretive breakpoint (判定ブレーキポイント)