

**Abstract**

Antimicrobial susceptibility testing (AST) of *Mycobacterium tuberculosis* complex (MTBC) plays an important role in tuberculosis (TB) control. Inexpensive, rapid, and easy to perform AST methods are needed. Tetrazolium microplate assay (TEMA) that employs dimethylthiazol-diphenyltetrazolium bromide (MTT) was evaluated with modifications. Twelve clinical isolates and *M. tuberculosis* H<sub>37</sub>Rv were tested by TEMAs and the agar proportion method (PM) against isoniazid (INH) and rifampicin (RIF). There was total agreement between the results of TEMAs and PM. Minimal inhibitory concentrations (MICs) for H<sub>37</sub> Rv obtained by TEMAs correlated with its known MICs. TEMAs appear to be a promising candidate for routine AST of MTBC in resource-poor settings.