

Rapid purity check method for susceptibility testing of *M. tuberculosis* complex with the MGIT 960 systems

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摘要

Abstract

The Bactec MGIT 960 system is a rapid and reliable automated method for drug susceptibility testing of *Mycobacterium tuberculosis* complex (MTBC) that yields a high percentage of agreement with the standard method. The microscopic cord morphology of *M. tuberculosis* in liquid medium is characteristic, and readily differentiates MTBC from nontuberculous mycobacteria (NTM). The goals of this study were to describe the microscopic and macroscopic growth morphology of MTBC in antimicrobial-containing MGIT tubes and to evaluate the usefulness of the growth appearance during purity checking. The macroscopic cotton wool-like appearance of MTBC isolates in isoniazid (INH), streptomycin (SM), rifampin (RMP), and ethambutol (EMB)-containing tubes was observed in 97, 90, 93, and 71% of the isolates, respectively. The percentage of typical cord, loose, or frayed rope microscopic features in smears prepared from MTBC-positive cultures of INH, SM, RMP, and EMB-containing tubes was 96, 86, 97, and 71%, respectively. The sensitivity of the macroscopic morphology for predicting the purity of drug-containing MGIT tubes was 93%, while the microscopic morphology predicted the purity with a sensitivity rate of 92%. We found that simply examining the macroscopic morphology of the antimicrobial-containing MGIT tubes of drug-resistant MTBC isolates is useful in preventing false resistant results of susceptibility testing by the MGIT 960 system.

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