

COMPARISON OF BACTEC MGIT 960 SYSTEM AND LÖWENSTEIN-JENSEN MEDIUM FOR DETECTION OF MYCOBACTERIA FROM CLINICAL SPECIMENS

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Introduction: One of the recommended standards for modern tuberculosis laboratory services nowadays, is that "mycobacteriology laboratories work toward the goal of reporting first-line susceptibility results of *M. tuberculosis* complex (MTC) within 15 – 30 days of receipt of the initial diagnostic specimen". Shorter turnaround times for the detection of MTC mean earlier and more accurate TB diagnosis and prevention of disease transmission.

Aim of the study: Evaluation of the BACTEC MGIT 960 system performance for the detection of mycobacteria in clinical respiratory and non respiratory specimens.

Methods: A total of 1289 clinical specimens(997 sputa, 149 bronchial washings, 68 pleural fluids, 39 gastric aspirates, 28 pus, 2 peritoneal fluids, 1 synovial fluid, 5 urine), collected from 649 patients treated at the UHLD, were cultured for mycobacteria. Processed specimens were inoculated into the BACTEC MGIT 960 system and onto Löwenstein-Jensen slants.

Results: A total of 133 isolates of mycobacteria were recovered (121 *M. tuberculosis* complex and 12 MOTT) belonging to 68 patients. The best yield was obtained with BACTEC MGIT 960 system, with 115 isolates of MTC (95.0%), in comparison with 108 MTC isolates (89.3%) with Löwenstein-Jensen medium.

The mean time to detection (Ttd) for MTC isolates on BACTEC MGIT 960 system was 12.7 days (Std Dev 8.43); 10.41(Std Dev 7.47) for smear positive and 16.01(Std Dev 8.40) for smear negative specimens. The mean Ttd for MTC isolates on Löwenstein-Jensen medium was 26.18 (Std Dev 15.39); 22.95(Std Dev 13.30) for smear positive and 31.07(Std Dev 16.49) for smear negative specimens. The mean Ttd for MOTT isolates was 8.93 (Std Dev 4.99).

The contamination rates were 12.56% and 11.30% for Löwenstein-Jensen medium and BACTEC MGIT 960 system respectively.

Conclusions: The BACTEC MGIT 960 system is a fast and reliable tool in the detection of tuberculous and other mycobacterial species. The combination of BACTEC MGIT 960 system and Löwenstein-Jensen medium gives the most optimal rate of mycobacterial recovery.