

Title: COMPARISON OF CULTURE METHODS FOR MYCOBACTERIAS, FROM MANUAL METHODS, OGAWA-KUDOH AND LOWENSTEIN-JENSEN, AND THE AUTOMATION METHOD BACTEC MGIT 960

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Abstract:

Tuberculosis is an infectious disease that despite the improvement of living conditions in developing countries and the institution of chemotherapy, remains a major cause of morbidity and mortality worldwide becoming since 2003 a priority for the Ministry of Health of Brazil. The laboratory diagnosis of tuberculosis usually relies on culture-based isolation of the causative bacteria, but fastidiousness of *Mycobacterium tuberculosis* may delay culture-based diagnosis for weeks. We evaluate the growth time and contamination rate in manual culture methods on solid medium (Ogawa-Kudoh and Lowenstein-Jensen) and the automated culture method on liquid medium (Bactec MGIT 960). Samples were analyzed for mycobacterium culture during the year 2011 at IPB-LACEN/RS and were grouped according to origin in: pulmonary and extra-pulmonary. All samples were inoculated in the manual methods of Ogawa-Kudoh and Lowenstein-Jensen and the automation method Bactec MGIT 960. Grown colonies in manual methods were identified phenotypically, and in automated method were microscopically evaluated to cord factor presence. In this study, 157 samples were cultured, 122 (77.7%) were pulmonary and 35 (22.3%) were extra-pulmonary. The positivity observed were 32.4% in Ogawa-Kudoh, 30% in Lowenstein-Jensen, and 33.8% in Bactec MGIT 960. The contamination rates were 11.5% in Ogawa-Kudoh, 16.6% in Lowenstein-Jensen, and 5.1% in Bactec MGIT 960. The growth time observe were 48.4 (SD 13.3) days in manual methods and 27.8 (SD 16.1) days in automated method. The MGIT 960 showed 94% and 100% of sensitivity and specificity, respectively. The Kappa coefficient showed good agreement with MGIT 960 and Lowenstein-Jensen (0.689), and with MGIT 960 and Ogawa-Kudoh (0.680). We observed that automation method has a positivity time shorter than manual methods, as well as a lower rate of contamination and a higher sensitivity and specificity. In conclusion the automation method improves the diagnosis of mycobacterial infections and can replace manual methods without any damage.

Key-words: Tuberculosis, Culture, Automation, MGIT 960.