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## Evaluation of the Ehrlich-Ziehl-Neelsen (EZN) and Amplified Mycobacterium tuberculosis Direct Test According to the BACTEC Method in Respiratory and Nonrespiratory Samples

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**Abstract:** Aim: Tuberculosis remains a significant and threatening disease, particularly in developing countries. Mycobacterium tuberculosis should be detected and identified as soon as possible to ensure the prevention of the spread of the disease. For this purpose, use of fast and reliable laboratory diagnostic methods with high sensitivity and specificity was initiated in recent years. Materials and Methods: In this study, 107 respiratory and 198 nonrespiratory (305 in total) samples submitted to Dicle University Faculty of Medicine Clinical Microbiology Laboratory were examined using the Ehrlich-Ziehl-Neelsen (EZN), BACTEC 460 TB (Becton and Dickinson Diagnostic Instrument System, Towson, MD), and MTD (Amplified Mycobacterium tuberculosis Direct Test, Gen-Probe, USA) methods. Results: In respiratory samples, sensitivity of EZN was found as 83.33%, specificity as 95.04%, positive predictive value as 50%, and negative predictive value as 98.96%, whereas in nonrespiratory samples these values were 18.18%, 98.39%, 40%, and 95.37%, respectively. In respiratory samples, sensitivity of MTD was found as 83.33%, specificity as 94.05%, positive predictive value as 45.45%, and negative predictive value as 98.95%, whereas in nonrespiratory samples these values were 54.54%, 88.23%, 21.42%, and 97.05%, respectively. Conclusions: In view of the above, the pre-diagnostic EZN test and the MTD method based on nucleic acid amplification should be applied together with the BACTEC 460 system, which is considered as a gold standard, and the evaluation should be made accordingly. Furthermore, MTD should not be used as a screening test due to its high cost, and should rather be preferred in smear-positive samples.

**Key Words:** Tuberculosis, Amplified Mycobacterium tuberculosis Direct Test, BACTEC, Ehrlich-Ziehl-Neelsen

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