DEVELOPMENT AND EVALUATION OF OF MULTIPLEX-POLYMERASE CHAIN REACTION FOR RAPID DETECTION OF MYCOBACTERIUM TUBERCULOSIS FROM PULMONARY SPECIMEN


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Background: Diagnosis of pulmonary tuberculosis is still a major challenge. Simple Polymerase chain reaction (PCR) targeting IS6110 on sputum samples has poor sensitivity as single gene targets may result in false negativity1,2. The aim of the present study was to develop Multiplex PCR which can detect most of the cases of tuberculosis which may otherwise be missed by using single gene target.

Methods: We have developed a Multiplex PCR (M-PCR) using IS 6110 and devR primer. A sample was considered positive for Mycobacterium tuberculosis based on the visualization of either one DNA fragment or both (123bp & 513bp) on agarose gel. M-PCR was then evaluated in patients of confirmed tuberculosis (n=200), suspected tuberculosis (n=100) and Non tubercular patients (n=200).

Results: M-PCR was 97.50% successful in detecting the presence of tuberculosis in confirmed tuberculosis group as compared to 84% by simple PCR and 45% successful in suspected group (40% by simple PCR). It was found to be highly specific (positive in 3/200 (3.50%) in non tubercular group.

Conclusions: Our study has shown that M-PCR assay is more sensitive and specific for rapid detection of M.tuberculosis from sputum specimen and could be used routinely for detection of M.tuberculosis thus helping clinicians in the diagnosis when all routine laboratory parameters are negative.

References: