**Utility of Polymerase Chain Reaction in rapid and reliable diagnosis**

**of tuberculosis in high endemic rural settings.**

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**ABSTRACT**

**Objective:** To evaluate the efficacy of conventional Polymerase Chain Reaction using clinical specimens collected directly from suspected tuberculosis patients by targeting IS 6110 sequence gene and to compare it with conventional microscopy and culture inoculation.

**Study Design:** Across sectional observational study.

**Place and Duration:** At Fatima Jinnah TB Hospital, Quetta from 1st Sept 2014 to 28th Feb 2015.

**Methodology.** In total 200 clinical samples (Pulmonary=180; extra pulmonary=20) were collected from suspected patients visiting hospital.All the samples were screened through ZN Microscopy, culture and nucleic acid based Polymerase Chain Reaction was applied directly to the clinical samples.

**Results**: Overall, 52.5 % samples were found positive by PCR, followed by 35.5% with Culture and 24.5 % with ZN microscopy, respectively. Furthermore, PCR also detected more extra pulmonary samples than conventional bascilloscopy. However culture detected non significantly higher number of extra pulmonary samples than PCR.

**Conclusion:** PCR is more reliable for the confirmation of the Mycobacterium tuberculosis complex directly from clinical samples than ZN microscopy and less time consuming than culture technique.

## Keywords: Tuberculosis, Diagnosis, Endemic area, Culture, Sputum, Extrapumonary, PCR, IS 6110 gene

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