

Analysis of *gyra* mutations in local TB patients of Lahore Pakistan



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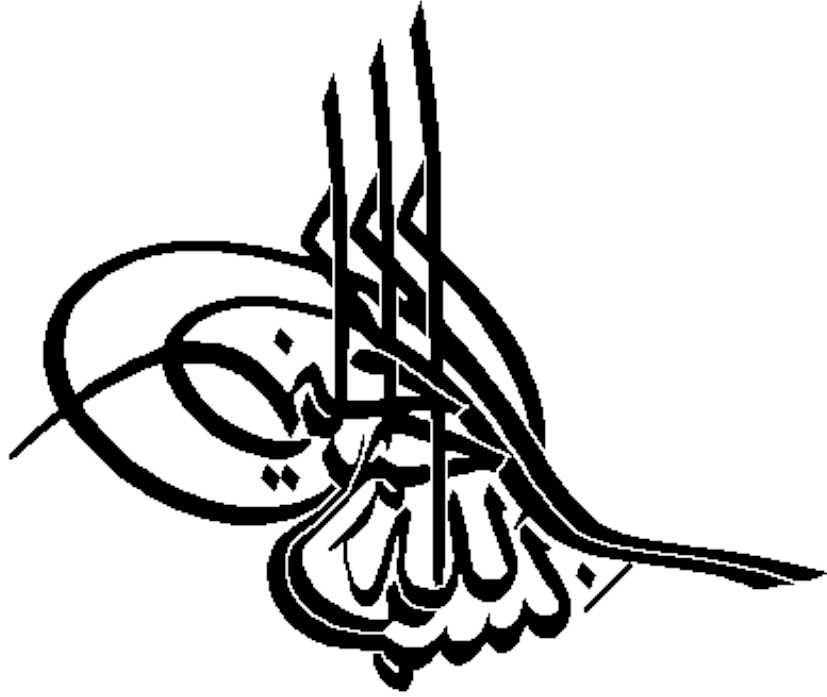
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In the name of

Allah,

The most Compassionate,

The most merciful

DEDICATED TO

MY MOTHER

SAMINA AFZAL

&

MY LATE FATHER

MUHAMMAD AFZAL HASHMI (MAY HIS SOUL

REST IN PEACE)

ANYTHING GOOD THAT HAS COME INTO MY LIFE

HAS BEEN BECAUSE OF YOUR GUIDANCE AND

LOVE.

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ABSTRACT

Tuberculosis is a slowly progressive, debilitating disease that kills about 1.5 million people world-wide. Pakistan ranked 4th in global TB burden. In this research work, male-female ratio showed that the rate of TB is 32 times higher in women as compared to men. The patients suffering from pulmonary TB were 94% and only 6% were recorded as extra pulmonary TB. All the extra pulmonary TB cases were found in females. There were about 72% cases which were positive for MDR-TB. Out of these 72% MDR-TB cases, all were previously treated. The differentiation between *M. bovis* and *M. tuberculosis* reflects that none of the sample belonged to *M. bovis*. All the isolates were belonged to *M. tuberculosis*, but 6% samples had extra-pulmonary TB. It shows that *M. tuberculosis* not only affects the lungs, but also the other parts of the human body. *GyrA* mutations were investigated by using newly designed primers, at codons 90, 91, and 94. Results showed that out of all samples there were mutations in 60% samples. There were mutations in 30% samples at codon 90, 6% samples were mutated at codon 91 and 24% were mutated at codon 94.

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Chapter I

Introduction

Tuberculosis is considered to be one of the diseases that have long history. Countries that are developed and have excellent treatments against tuberculosis, it is challenging for them to control TB (David, 2011). Even with the modern advances in medicine, tuberculosis (TB) is still a major cause of deaths, at a large scale worldwide (Chiu et al., 2011). Owing to a single infectious agent, it is unique and most common contagious diseases, in adults all over the world. Though the major cause of TB in humans is *M. tuberculosis*, but there are some cases due to *M. bovis* also (Cosivi et al., 1998).