

**Molecular analysis of ethambutol resistance in *Mycobacterium tuberculosis* isolates recovered from patients admitted to the health center in Ardabil city using MAS-PCR, 2017-2020**

**Abstract**

**Background:** global stop TB is a critical strategy in which aimed to reduce the incidence of tuberculosis to less than one case per one million people by 2050. To achieve this goal, it is necessary to quickly diagnosis of the disease, providing effective treatment and identifying drug-resistant strains. In this regard, this study was designed for identifying resistance to ethambutol in patients referred to Ardabil Health Center

**Aim:** molecular identification of ethambutol resistance in TB patients admitted to Ardabil Health Center

**Materials and methods:** In this descriptive cross-sectional study, 71 sputum samples were collected from patients referred to Ardabil Health Center between 2017-2020. The samples were first examined by microscopic method, then DNA was extracted using the boiling method. With the help of specific primers and PCR technique, the presence of tuberculosis complex strains and then the resistance to ethambutol were investigated

**.Results:** of 71 collected sputum, 6 samples were NTM (8.45%). Out of all the examined samples, 36 samples (50.7%) had embB306 gene mutation, of which 3 samples were NTM (total NTM resistance was 50%). Among the samples that were identified as resistant to ethambutol, 6 samples had a low bacterial load as +1 (16.67%), 8 samples had a moderate bacterial load as +2 (22.22%) and in the rest, all of them had a high bacterial load as +3 (61.11%).

**Conclusion:** In this study, the frequency of resistance to Ethambol was 50.7%, which was higher than previous similar studies. Also, this study showed that the MAS-PCR method is a fast, cheap and reliable method for identifying resistance to first-line tuberculosis drugs such as ethambutol. With the help of this method, resistance to other first-line drugs can be checked at the same time, and the spread of resistant strains in the community can be prevented by quickly detecting antibiotic resistance

**.Keywords:** *Mycobacterium tuberculosis*, DNA, ethambutol.