

Isolation and Molecular Identification of Mycobacterium Tuberculosis and Mycobacterium Bovis Isolates of Pulmonary Patients in Markazi Province by PCR-RFLP

Behnam Rafiee*¹; Sepideh Ghani²; Ali asghar Farazi³; Davoud Sadgeghi⁴; Behroz Shojaie¹; Keyvan Tadayon⁵; Nader Mosavari⁵

1-Department of Microbiology, Qom Branch, Islamic Azad University, Qom, Iran

2-Young Researchers Club, Arak Branch, Islamic Azad University, Arak, Iran

3-Department of Infectious diseases, Arak University of Medical Sciences, Arak, Iran

4-Department of Biology Science and Research Branch, Islamic Azad University, Tehran, Iran

5-Razi Vaccine, Serum Research Institute, Karaj, Iran

behnam_r17@yahoo.com

Background & Objectives: Tuberculosis is an important cause of death in some countries. *Mycobacterium tuberculosis* complex is consisted of homogenous organisms, they are slowly growing mycobacteria and their isolation and identification are difficult and time consuming (6-8 weeks). The objectives of this study was to evaluate a molecular methods for differentiate *Mycobacterium tuberculosis* from *Mycobacterium bovis* and comparison with biochemical tests.

Methods: In this study 68 sputum specimens collected from smear positive patients of health centers in Markazi province and cultured, also we used of 10 isolates of *Mycobacterium bovis* from different area in Iran and 6 standard strain that exist in Razi Vaccine and Serum Institute for comparison. Then performed biochemical tests, afterward performed DNA extraction. OxyR pseudogene was amplified by PCR, then PCR product digested by AluI endonuclease and such variation produces different restriction site for AluI.

Results: There were one incisive fragment in *Mycobacterium tuberculosis* and three incisive fragments in *Mycobacterium bovis*, also we observed one isolate of human was *Mycobacterium bovis*, and this results were consistent with biochemical tests.

Conclusion: PCR-RFLP is a rapid and accurate methods for differentiate between *Mycobacterium bovis* and other *Mycobacterium tuberculosis* complex and important in diagnosis and treatment of tuberculosis.

Keywords: *Mycobacterium tuberculosis* Complex; Pulmonary Tuberculosis; PCR-RFLP; OxyR Pseudogene