Abstract: Background: Mycobacterium tuberculosis (MTB) is a pathogenic bacterial species in the genus Mycobacterium and the causative agent of most cases of tuberculosis. A definitive diagnosis of tuberculosis can only be made by culturing Mycobacterium tuberculosis organisms from a specimen taken from the patient (most often sputum, but may also include pus, CSF, biopsied tissue, etc). Mycobacterium tuberculosis traditionally is grown on a selective medium, Lowenstein-Jensen medium. However, this method is quite slow, as this organism requires six to eight weeks to grow, which delays reporting of results. One of the important challenges facing the tuberculosis (TB) programs is lack of rapid cultural method, especially in low-income countries. The aim of this investigation was to study the effectiveness of adding of ethanol and streptomycin on growth rate of Mycobacterium tuberculosis strains on Lowenstein-Jensen (LJ) medium.

Methods: This research was studied in Research Center for TB and pulmonary Diseases of Tabriz. The concentrations of streptomycin (0.5-1.6 µg/ml) and ethanol (0.5-4%) were added on LJ medium alone and in combinations. Thirty M. tuberculosis strains were separately cultured and studied on LJ medium.

Results: The results showed combination of 0.1 µg/ml streptomycin with %1 ethanol could increase the growth rate of M. tuberculosis strains. On the other hand, use of 0.1 µg/ml streptomycin together with %5 ethanol enhances the growth rate of M. tuberculosis strains on LJ medium.

Conclusion: Use of streptomycin (0.1 µg/ml) and ethanol (1%) or combination of them (0.1 µg/ml of streptomycin and 0.5% ethanol) in LJ medium could decrease the time of diagnosis of M. tuberculosis strains approximately one to two weeks.