The Identification of proteins present in culture filtrare of Mycobacterium tuberculosis DT and comparison with human tuberculin proteins by electrophoretic methods

Abstract

Background and objectives: Tuberculin is the proteins existed in tuberculosis culture medium which precipitated by trichloroacetic acid (TCA) or ammonium sulfate. Tuberculin is used for diagnosis of Tuberculosis. The aim of this study is to compare the human tuberculin produced by Razi Institute and Mycobacterium tuberculosis Culture Filtrate Protein.

Material and Methods: Initially By biphasic medium, Bacteria from Lowenstein–Jensen solid medium was transferred to a Dorset–Henley Liquid medium. After 6 weeks of growth, the bacteria were isolated from liquid medium containing secretory proteins by the 0, 22 micron filter and the solution containing secretory proteins was precipitated by TCA and ammonium sulfate, separately. Then, using spectrophotometer and kjeldahl protein assay, the presence of protein in solution was confirmed. At the end, the precipitated proteins are compared with the human tuberculin by Coomassie-Blue stained SDS-PAGE.

Results: The protein samples precipitated by TCA have more bands in the limit of higher than 20 kDa, but the protein samples by ammonium sulfate have more bands in the limit of less than 20 kDa. Human tuberculin proteins are like smear and their weight is less than 16 kDa.

Conclusion: It seems that ammonium sulfate is more suitable for low molecular weight proteins than TCA for precipitation.

Key words: Mycobacterium tuberculosis, SDS-PAGE, tuberculin

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