عنوان مقاله:

Isolation and Purification of Low Molecular Weight Proteins from Culture Filtrate of Mycobacterium Tuberculosis Strain C

محل انتشار:

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خلاصه مقاله:

In the last couple of years, a number of new and rapid tests for the diagnosis of Tuberculosis (TB) have been developed based on the low molecular weight antigens from Mycobacterium tuberculosis (Mtb) culture supernatant. This study aimed to isolate and purify low molecular weight antigens secreted by Mtb strain C for diagnostic purpose. The secretory proteins from culture filtrate of Mtb were extracted using ammonium sulphate precipitations and sephadex-G۵۰ gel chromatography. The obtained antigen fractions were analyzed for their protein concentrations and approximate molecular weight using Lowry method and SDS-PAGE (۱۲.۵%), respectively. DOT-ELISA and Western blot assay was performed to confirm the presence of purified low molecular weight proteins isolated from Mtb using sera from pulmonary tuberculosis patients (polyclonal antibodies). During chromatography, low molecular weight proteins were separated, that was approximately ۰.۷ mg/ml of the total proteins (۱.۶۶۲ mg/ml). The purified protein fractions in molecular weight range of ۱۴ kDa-۴۱kDa appeared during SDS-PAGE analysis. The chromatographic band fraction in the weight range of ۳۰-۴۱ kDa was identified in the TB patients' sera using Western blotting. The low molecular weight proteins in the culture filtrate of Mtb strain C were purified using ammonium sulphate and chromatography. These fractions were confirmed using Western blotting. The obtained results might support the hypothesis that the Mtb culture filtrate antigens could be used as a rapid and sensitive assay for the detection of patients with pulmonary TB.

کلمات کلیدی:

chromatography, Dot enzyme-linked immunosorbent assay, Mycobacterium tuberculosis, Sodium dodecyl sulphate–polyacrylamide gel electrophoresis, Western-Blot