عنوان مقاله:

A Novel High-Performance Liquid Chromatography Method for Detection of Alginate in Pseudomonas aeruginosa

محل انتشار:

فصلنامه آسیب شناسی ایران, دوره 2, شماره 3 (سال: 1386)

تعداد صفحات اصل مقاله: 4

نویسندگان:

Parviz Owlia - *Dept. of Microbiology, Faculty of Medicine, Shahed University, Tehran, Iran*

Effat Souri - *Dept. of Medicinal Chemistry, Faculty of Pharmacy, Tehran University of Medical Sciences, Tehran, Iran*

Qurban Behzadian-Nejad - *Dept. of Microbiology, Faculty of Medical Sciences, Tarbiat Modarres University,Tehran, Iran*

خلاصه مقاله:

Background and Objective: The opportunistic pathogen Pseudomonas aeruginosa secrets a capsule-like polysaccharide called alginate which is important for evasion of host defenses, especiallyin patients with suppressed immunity. Method of alginate determination has an important role inthe study of microbial alginate. In this study, a novel method for alginate determination by highperformanceliquid chromatography (HPLC) was introduced.Materials and Methods: Standard alginate was used for construction of standard curve and standard mucoid and non-mucoid strains of Pseudomonas aeruginosa were used as positive and negative samples respectively. The method of Toyoda was modified for determination of microbialalginate. HPLC determination was performed using a Resolve C18 column (3.9 × 150 mm, Waters, Milford, MA) and acetonitrile-water-butyl acetate (55: 42: 3) as the mobile phase at a flow rate of0.6 ml/min and detection at 565 nm. Results: The obtained data indicated that minimal detectable concentration of alginate by thismethod is 20 µg/ml. The method was linear over the range of 1-1000 µg/ml of alginate. The retentiontime was about 10 min. Conclusion: The proposed method was used for determination of alginate in standard mucoid and non-mucoid strains of Pseudomonas aeruginosa. The results of this study showed that the proposed method is a simple and valid method for bacterial alginate assay.

کلمات کلیدی:

Alginate, HPLC, Pseudomonas aeruginosa