

Purification, Extraction and Visualization of Lipopolysaccharide of Escherichia coli from Urine Samples of Patients with Urinary Tract Infection

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Abstract : Urinary tract infection (UTI) is one of the most common infectious diseases in Bangladesh where Escherichia coli is the prevalent organism and responsible for most of the infections. Lipopolysaccharide (LPS) is known to act as a major virulence factor of E. coli. The present study aimed to purify, extract and visualize LPS of E. coli clinical isolates from urine samples of patients with UTI. The E. coli strain was isolated from the urine samples of 10 patients with UTI and then the antibiotic sensitivity pattern of the isolates was determined. The purification of LPS was carried out using the hot aqueous-phenol method and separated by sodium dodecyl sulfate polyacrylamide gel electrophoresis, which was directly stained using the modified silver staining method and Coomassie blue. The silver-stained gel demonstrated both smooth and rough type LPS by showing trail-like band patterns with the presence and lacking O-antigen region, respectively. Coomassie blue staining showed no band assuring the absence of any contaminating protein. Our successful extraction of purified LPS from E. coli isolates of UTI patients' urine samples can be an important step to understand the UTI disease conditions.

Keywords : Escherichia coli, electrophoresis, polyacrylamide gel, silver staining, sodium dodecyl sulfate polyacrylamide gel electrophoresis (SDS-PAGE)

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