

## Gel clot assay used for detection of *Candida spp.* infection in urinary tract

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### Abstract

The study including isolation and identification of *Candida spp.* causing UTIs from patients coming to Al- Yarmouk hospital. A local diagnostic kit was used for measuring candidotoxin activity in the urine of patients and it's relation to *Candida spp.*

50 urine samples were collected from female patients of different ages with UTI. The percentage of *C. albicans* was (26%); *C. tropicalis* was (16%). The results showed a high significant difference between them ( $p=0.00$ ,  $\chi^2=21.0$ ). The study comprised and attempts to prepare a local diagnostic kit from the lysate of *Homarus lobster*, used to indicate the presence of candidotoxin and measure it's activity also in urine samples.

The study showed a significant increase in candidotoxin activity in UTI patients, (69.2%) for *C. albicans*, (75%) for *C. tropicalis* while the percentage of the patients who have no fungal growth was 17.24%. The results showed that the percentage of positive LAL assay in-patients diagnosed with fungal infection was (40%) as compared with negative results (60%).

### Introduction

Gel clot LAL assay that has been obtained from aqueous extracts of the circulating ameobocyte of horseshoe crab (*Limulus polyphemus*) (1).

This assay used for estimation of bacterial endotoxins or fungal B-glucans in biological specimen (2).

*Candida albicans* was the most common single pathogen isolated from urine and made up just over half of the fungal isolates. *Candida* urinary tract infection usually associated with catheter use, pregnancy, diabetes, and broad-spectrum antibiotic used (3,4).

Approximately 80-90% of the cell wall of *C.albicans* is carbohydrate. Three basic constituents represent the major polysaccharides of the cell wall (B-glucans, chitin, Mannan), in addition to protein (6-25 %) and minor

Some strain of pathogenic *C.albicans* have the ability to produce endotoxins called candidotoxin which cause physiological effect such as killing activity when give intravenous injection to lab. Animals' candidotoxin had effectively on lysosome bodies that similar to endotoxin produce by gram-negative bacteria (6). Candidotoxin activity could be measured by LAL assay (7).

Eleven species of both pathogenic and saprophytic yeast were tested for endotoxin activity by use of the Limulus assay. These included six species of the genes *Candida*. Such as *Candida albicans* (7). The principle of LAL assay depends on this figure (8).

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