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THE INHIBITORY EFFECT OF PARTIALLY PURIFIED LIPOPOLYSACHARIDE EXTRACTED FROM *PSEUDOMONAS AERUGINOSA* BACTERIA ON *CANDIDA GLABRATA* YEAST

Samah Salih and Suaad Khalil

Department of Biology, College of Education for Pure Science (Ibn Al Haitham), University of Baghdad, Iraq.
e-mail: estabraq_alqaissi@yahoo.com

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ABSTRACT : *Pseudomonas aerogenosa* lipopolysaccharidewas extracted by hot phenol method and purified by gel filtration method using the Sephadex G-200 gel and detected by the limulus amebocyt lysate (EU/ml 0.03) (Wako Chemicals USA, Inc.). The inhibitory effect of partially purified LPS on *Candida glabrata* yeast was studied in a microdilution method. This study found that LPS has an inhibitory effect on *Candida glabrata* with the lower concentrations. The inhibitory effect of LPS which treated with heating was studied under boiling and wet heat effect. The toxicity of LPS on *Candida glabrata* was not affected when treated with heating LPS and the results were similar to those found in untreated LPS.

Key words : Lipopolysaccharide, *Pseudomonas aeruginosa*, *Candida glabrata*.

INTRODUCTION

LPS is the major component of the outer layer of the cell membrane in gram-negative bacteria and plays an important role in the adhesion of bacterial cells due to its hydrophobic properties. It is called an endotoxin, which is distinguished from exotoxin (Moran, 1997). LPS consists from three regions: 1-lipid A, it is the hydrophobic part which responsible for the toxic properties; 2-Core is composed of oligosaccharide and it is associated with lipid A with phosphate group, which is hydrophilic3-Antigenic polysaccharide series and O-antigen that is responsible for the Immunological properties (Pier, 2007). LPS has been shown to be resistant to heat but can be destroyed after exposing to high temperatures such as boiling for a certain time (Todor, 2008). The effect ofpartial purified lipopolysaccharide on *Candida glabrata* yeast has been investigated in this study. *Candida glabrata*is opportunistic yeast due to its ability to grow within human body and also consumption of available carbon resources (Mota *et al*, 2015). It causes mucosal inflammation, blood stream infection which life-threatening infections in people with impaired immune systems, as well as people with diabetes, elderly people and patients, who have undergone organ transplants; furthermore it is may be a causative agent for urinary and vaginal infections (Kumer *et al*, 2019).

MATERIALS AND METHODS

LPS: one isolate of *Pseudomonas aeruginosa* was isolated from the blood. The isolate wasdiagnosed by Vitec-2 compact system; LPS was extracted by phenol-hot method (Johnson and Perry, 1976). The extract was purified by gel filtration technique using the Sephadex G-200 gel and LPSwas detected by using (LAL) (0.03 EU/ml) (Wako Chemicals USA, Inc.)

Candida glabrata : Single clinical isolate was collected from the mouth and then *Candida glabrata* yeast isolate was diagnosed using Vitec-2 compact system.

Microdilution method was used to measure the yeast sensitivity for partial purified LPS extract. *Candida glabrata* was activated on Sabouraud dextrose agar medium and incubated for 24-48 hours at 35°C. Then, some of *Candida glabrata* colonies were suspended in normal saline (0.85%) to prepare yeast suspension and the suspension density was compared with McFarland's tube (0.5) that contains ($1\text{-}5 \times 10^6$) of yeast, and 96-well plate was used for calibration. Sabouraud dextrose brothused as a negative control, while inoculated Sabouraud dextrose broth with the yeast was used as a positive control. Serial concentrations of LPS were prepared at (12.5, 25, 50, 100 ìg/ml) of LPS using Sabouraud dextrose broth; a 100 ìl of inoculated broth medium was added for each well, then 10 ìl of yeast