Determination of Genetic Variability and Distance Between Nambers of Candida Spp Isolated from Urinary Tract Infections in The Iraqi Female Population using Rapd Molecular Techniques

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Abstract

background Yeast is a type of fungus. People who take antibiotics may develop candidiasis because the antibiotics kill off naturally occurring bacteria in the body, which helps Candida grow unchecked, Treatment with corticosteroids or drugs that suppress immunity can also reduce the body's defenses against Candida. Methodology100 samples were isolated from people suffering from urinary tract infections using sterile swaps and isolated on their selective media All clinical samples of suspected lesions were infected with chloramphenicol on SDA Cycloheximide supplementation intermediate using a sterile inoculation ring and incubated at 25-30°C before being assessed. Negative cultures were after 4 weeks, whereas positive cultures were inspected by macroscopic and microscopic identification. Result Primer Op-V19 The number of bands recorded for this bundle was 4 recorded bundles whose sizes ranged between 650-1900 base pairs, all of them appeared and there were no side bundles, so this is considered a general bundle. The number of bundles recorded for this bundle was 8 recorded bundles whose sizes ranged between 275 -1500 base pairs, Featured by the presence of five public bundles 275, 1200, 1500, 900 and present three differential bundles 276, 650 and 800 base pairs.

Keywords: genetic variability, candida spp, rapd molecular techniques

1. Introduction

Candida is a yeast that is normally found on the skin, mouth, digestive tract, and vagina. It usually causes no harm, but under certain conditions, Candida can grow excessively on the mucous membrane and moist areas of the skin (1,2,3). Typical areas of infection are the mouth The upper thigh, the armpits, the spaces between the fingers and toes, on the uncircumcised penis, the skin folds under the breast, the nails, and the skin folds of the abdomen (4,5,6). Yeast is a type of fungus. People who take antibiotics may develop candidiasis because the antibiotics kill off naturally occurring bacteria in the body, which helps Candida grow unchecked (7,8,9). Treatment with corticosteroids or drugs that suppress immunity can also reduce the body's defenses against Candida. Inhaled corticosteroids, which are often used by people with asthma, can sometimes cause candidiasis in the mouth (10.11). Pregnant women, patients taking cancer medicines, and obese people and people with diabetes are also more likely to get Candida infection. Microorganisms classified as fungi are eukaryotic. They might take the shape of yeasts, molds, or a mix of the two (12). Certain fungi can produce illnesses that are superficial, cutaneous, subcutaneous, systemic, or allergic in nature (13). Yeasts are tiny fungi that reproduce through budding. (14) Molds, on the other hand, develop in long filaments known as hyphae that extend apically. Whatever their shape or size, all fungi are heterotrophic and digest their food outside by the release of hydrolytic enzymes into their immediate environment (absorptive nutrition) (15). There are around 600 distinct fungi that have been known to infect people, ranging from common to deadly diseases,and infecting various sections of the human body such as the oral and other mucosa, hair, skin, and nails, as well as other areas such as allergies.

2. Methodology

Collection of specimens

100 samples were isolated from people suffering from urinary tract infections using sterile swaps and isolated on their selective media

Sterilization methods

Dry heat sterilization oven was used to sterilize glassware at 160-1800C for (2-3) hours while moist thermal sterilization was employed to disinfect the media and certain solutions (not impacted by heating).

Culture incubation

All clinical samples of suspected lesions were

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infected with chloramphenicol on SDA Cycloheximide supplementation intermediate using a sterile inoculation ring and incubated at 25-30°C before being assessed. Negative cultures were after 4 weeks, whereas positive cultures were inspected by macroscopic and microscopic identification (9).

Identification of Fungal Isolates

Macroscopic and microscopic analysis of culture isolates were used to discriminate between the fungi. The thorough examination is defined by the time of growth and is one of the types that isolates pigment producing cells in the absence of pigment dependent surface morphology in the medium. The growth of fungus using lactophenol cotton blue dye is examined microscopically. Nature assisted in the formation of the fungus and conidia (large and small conidia), Distinguish between these groups.

Table 1 The list of RAPD primer		
NO.	Primer	Sequence
1	OP-V19	GGGTGTGCAG
2	OP-L05	ACGCAGGCAC
3	OP-M06	CTGGGCAACT

3. Result and Discussion

Table 2 shows the percentage of growth of Candida fungi isolated from the urine of patients at different age periods The number of samples that were taken from women between the ages of 18-25 years was 40 samples, five of which gave a positive test for candida, with an isolation rate of 12.5%. As for the samples that were taken from women aged 24-45 years, 40 samples also gave the highest isolation rate for candida. It reached 15, with a rate of isolation of 37.5%. As for women whose ages ranged between 45-60, the number of samples reached 20 samples, five of which gave a positive test, with an isolation rate of 12.5%, so the number of samples that gave a positive test for candida was 25 samples out of a total of 100 samples, while the rest of the samples gave alive another microscopy.

Table 2 The percentage of growth of Candida fungi isolated from the urine of patients at different age periods

Age of patient	No. of urine specimen	Growth	Percentage	Negative / Growth	Percentage
18-25 year	40 sample	5	12.5%	35	87.5%
25-45	40 sample	15	37.5	25	62.5 %
45-60	20 sample	5	12.5%	15	75%
Total		25 sample	72.5%	75 sample	

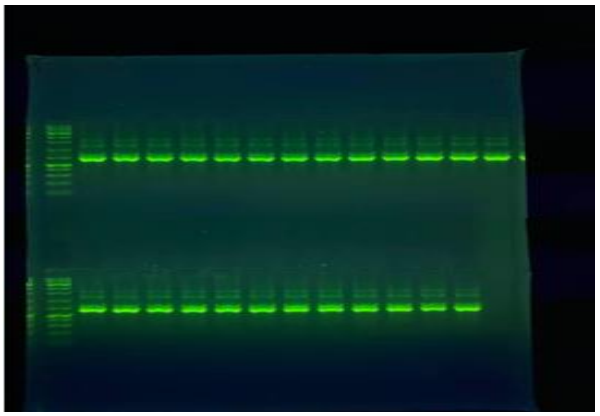

Figure 1 PCR product of primer OP-V19 the product was electrophoresis on 2% agarose at 5 volt/cm². 1x TBE buffer for 1:30 hours. N: DNA ladder 1000 plus bp

Primer Op-V19

The number of bands recorded for this bundle was 4 recorded bundles whose sizes ranged between 650-1900 base pairs, all of them appeared and there were no side bundles, so this is considered a general bundle.

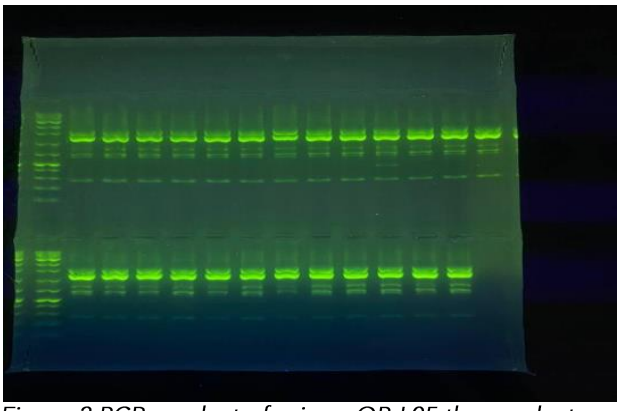

Figure.2 PCR product of primer OP-L05 the product was electrophoresis on 2% agarose at 5 volt/ cm². 1x TBE buffer for 1:30 hours. N: DNA ladder1000 plus bp

Primer Op-L05

The number of bundles recorded for this bundle was 8 recorded bundles whose sizes ranged between 275 -1500 base pairs, Featured by the presence of five public bundles 275, 1200, 1500, 900 and present three differential bundles 276, 650 and 800 base pairs.

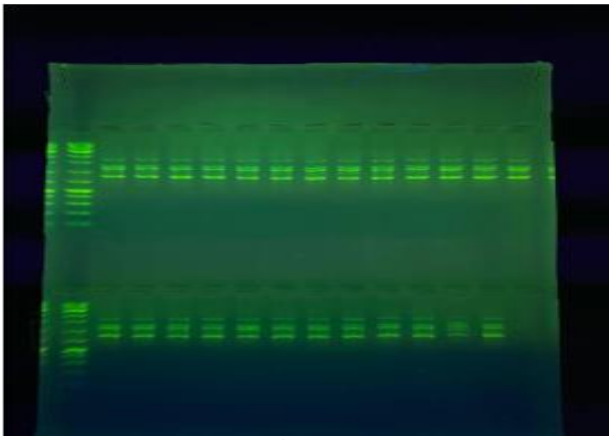

Figure 3 PCR product of primer OP-M06 the product was electrophoresis on 2% agarose at 5 volt/ cm². 1x TBE buffer for 1:30 hours. N: DNA ladder 1000 plus bp

Primer Op-M06

The number of bundles recorded for this bundle was 6 recorded bundles whose sizes ranged between 800 -1500 base pairs Featured by the presence of four public bundles 800, 1100, 1250 and 1500 and present two differential bundles 900 and 1000 base pairs

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