

Isolation and Identification of *Candida Spp.* from non-pregnant Infection woman's with Candidiasis

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ABSTRACT

Due to their global dominance as the most common opportunistic mycoses, *Candida* species are important in medicine. the commonness of *C.* The incidence of *Candida albicans* and other species has significantly increased over the past few decades. These studies looked examined the ability of a vulvovaginal sample to isolate and identify *Candida* species as well as how different antifungal drugs, such as Amphotericin B, Nystatin, Itraconazole, Clotrimazole, and Ketoconazole, affected different *Candida* strains. Thirty out of fifty non-pregnant women who visited Al-Zahra Hospital and displayed symptoms and signs of candidial vulvovaginitis had their vaginal *Candida spp.* collected. They were between 20 and 35 years old. Direct microscopic examination, mycological analysis, and plating on sabrouaud dextrose agar (SDA) were were performed on all vaginal swabs. SDA was then incubated for 48 hours at 37°C. The *Candida* isolates were identified to the spp. level using the Vitek 2 Compact System, growth morphology, germ tube tests, and conventional staining techniques. The findings revealed the presence of *C. albicans* (66.6%), *C. tropicalis* (26.6%), and *C. krusei* (6.6%).

Keywords: *Candida Spp.* , *Candida albicans*, Vulvovaginal Candidiasis

Article Information

Received: February 16, 2023; Revised: February 28, 2023; Online: April, 2023

INTRODUCTION

A member of the *Candida* genus, often *Candida albicans*, has been shown to cause vulvovaginal candidiasis (VVC), a vaginal fungal infection. Vulvovaginal candidiasis affects 75% of women at some point in their lives. [2]. itching, pain, Inflammation, dyspareunia, vaginal discharge, and discomfort are all symptoms of vulvovaginal candidiasis. Clinical symptoms include vulva erythema, edema, excoriation, and fissure formation in addition to vaginal and introital erythema[3]. A non-malodorous, clumpy white discharge may be a sign of VVC, despite the fact that it is not very specific [1]. While it doesn't appear that additional *Candida* species (spp.) like *C. glabrata*, *C. krusei*, and *C. tropicalis* significantly enhance infection rates, *C. albicans* is the most common cause of VVC [4]. According to the Clinical Practice Guidelines, the three azoles that are most frequently administered as topical or oral antifungals for the treatment of VVC are fluconazole, clotrimazole, and miconazole. [5] [5]. The long-term efficacy of antifungal medications is limited, and there has been a noticeable increase in the resistance of *Candida* species to antifungal medications, which has resulted in the formation of multidrug resistance [6][7].

Depending on the yeast species that causes VVC, it is possible to identify and understand the distribution of *Candida albicans* and other *Candida spp.* in different patient subpopulations, but the data gathered can provide a very accurate picture of antifungal susceptibility rates. In fact, it is now known that pathogenic fungi have either inherent or acquired resistance to modern antifungal medications[8]. The majority of women have reportedly taken at least one course of azole over-the-counter medications, including topical and systemic azoles (available in shampoo, cream, powder,

and laundry detergents, for example)[9]. The majority of the time, patients who visit a doctor are treated empirically; vaginal cultures are not usually acquired, and susceptibility testing is infrequently done[10]. Antifungal drugs were reportedly unnecessarily given in 54% of situations where a culture came out negative. Antifungal resistance develops as a result of this unnecessary use of antifungal therapy, and more infections caused by *Candida* spp. and other adaptive fungus are seen[11]. Thus it is important to assess the susceptibility and resistance of pathogenic isolates of *Candida albicans* and other *Candida* spp. to antifungal drugs. The disc diffusion method, a simple yet effective approach for assessing yeast susceptibility, is crucial for recovery in VVC-affected women[12]. Our study's objective was to determine the distribution of the *Candida* species among VVC-infected females.

MATERIALS AND METHODS

Vaginal *Candida* spp. were taken from thirty of fifty non-pregnant women who visited Al-Zahraa Hospital in the Al Najaf governorate of Iraq and showed symptoms and signs of candidial vulvovaginitis. They were between 20 and 35 years old. The obtained swabs were streaked immediately onto Sabouraud dextrose agar plates with 0.5 mg/1000 ml chloramphenicol (HiMedia Laboratories Pvt. Ltd., India) and CHROMagar *Candida* plates (Rambach, France), and they were incubated at 37°C for 48–72 hours. On the plates, the colonies' morphology, size, and color were examined[13].

Test using a germ tube to identify *Candida albicans*

A test tube containing 0.5 cc of human serum was contaminated with colony inoculums of potential *Candida* cultures and incubated at 37 °C for two to four hours. Before being positioned on a glass slide, under a microscope, covered with a cover slip, and examined for the presence or absence of germ tubes, the culture-rich loop was incubated. At the location of attachment to yeast cells, long, tube-like projections without constriction or septa were thought to arise during the creation of germ tubes. A telltale indication of *Candida albicans* is the germ tube.

Identification by Vitek2 compact system

The first diagnosis and naming of *Candida* isolates was done using the BioMerieux/France Vitek 2 Compact system. Yeast suspensions with a turbidity of 1.80 to 2.0 were applied to the ID cards using DensiChek™. Within 18 hours of incubation, the results on the card were compared to an identification database [14].

RESULTS

Candida sp. was detected in 60% of the urine samples grown on the SDA, whereas the remaining 40% of urine samples were negative. Using SDA cultural characteristics *Candida albicans* rough colonies on SDA are white, smooth, and have a yeast-like appearance; *Candida tropicalis* colonies on SDA are white to creamy, glossy, and smooth, and cream-colored. Fig (1).



Figure 1: *Candida* spp. colonies on SDA incubated at 25°C for 24 hours.

Candida spp. emerging yeast-like cells, spherical to subspherical, and hyphae or pseudohyphae are visible under a microscope using simple stain and gram stain. While isolated *Candida tropicalis* and *Candida krusei* were negative, *Candida albicans* was detected in all cases using the germ tube test method Figure 2.



Figure 2 : Germ tubes production after 1.5 hours in fresh human serum at 37°C. (100X).

After cultivating samples on the *Candida* spp.-specific media known as Chromo agar *Candida*, and determining the species of *Candida* based on the color of the colonies. *C. Candida tropicalis* is blue, *Candida albicans* is green, and *C. pink* hue of *Krusei*, Fig (3).

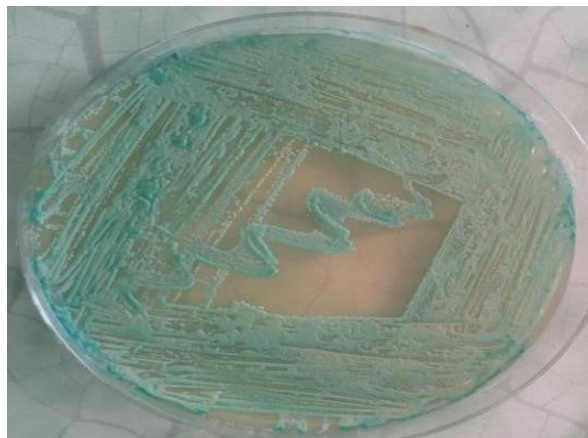


Figure 3: *Candida* spp. colonies on CHROMagar™ *Candida* Chromogenic Media

Data from the Vitek2 compact System showed *C. albicans* (66.6%), *C. tropicalis* (26.6%), and *C. krusei* (6.6%), (Table1).

Table 1: Candida species isolated by vaginal culture

Candida Spp.	Frequency	
	No. Isolation	% of Isolation
<i>C. albicans</i>	20	66.6
<i>C. tropicalis</i>	8	26.6
<i>C. krusei</i>	2	6.6
Total	30	100

DISCUSSION

Despite the fact that VVC is the most prevalent fungal disease on earth, microbiological investigations are rarely performed in labs; as a result, little is known about the prevalence and etiology of candidiasis [10]. The majority of the *Candida* spp. found in women's vaginal swabs were *C. albicans*, which has been linked to vulvovaginitis. This outcome is congruent with what has been discovered in earlier studies [15].

Other *Candida* spp. were more prevalent than usual, with averages of *C. tropicalis* 26.6% and *C. krusei* 6.6%. This result is consistent with numerous studies that found other *Candida* spp., such as *C. tropicalis* and *C. krusei*, to be the cause of a significant increase in infections in recent years [4]. Vitek 2 Compact determined that the majority of the pathogenic yeast from the women with VVC who were undergoing outpatient care was *C. albicans*.

CONCLUSION

The most common pathogen in VVC was *Candida* spp., both *albicans* and non-*albicans*; this investigation has shown that non-*albicans* constitute a major source of candidiasis, with *C. tropicalis* being the most common species in the patients under examination.

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