



Available online on 15.1.2020 at <http://ujpr.org>
Universal Journal of Pharmaceutical Research
 An International Peer Reviewed Journal
 Open access to Pharmaceutical research
 This is an open access article distributed under the terms of the Creative Commons Attribution-Non Commercial Share Alike 4.0 License which permits unrestricted non commercial use, provided the original work is properly cited
Volume 4, Issue 6, 2019



RESEARCH ARTICLE

THE PREVALENCE OF VULVOVAGINAL CANDIDIASIS IN PREGNANT WOMEN ATTENDING SEVERAL HOSPITALS IN SANA'A, YEMEN

Abdulrahman Humaid¹ , Saeed M Alghalibi¹, Anes Al-Mahbashi, Aml AL-Arossi¹,
 Wadhah Hassan Edrees^{2*} 

¹Biology Department, Division of Microbiology, Faculty of Science, Sana'a University, Yemen.

²Medical Laboratory Department, Faculty of Medical Sciences, Al-Razi University, Yemen.

ABSTRACT

Candida species are opportunistic yeasts affecting the genitourinary tract which causes the vulvovaginal candidiasis in the most female especially in developing countries. This study aims to determine the prevalence of vulvovaginal candidiasis caused by *Candida* species causing among pregnant women in Sana'a City, Yemen. This study was carried out at the department of microbiology of AL-Kuwait University Hospital. 250 vaginal swabs were collected and cultured on Sabouraud dextrose agar. *Candida* species identification and antifungal susceptibility testing were determined according to standard microbiological methods. The results showed that out of 250 samples, 63(25.2%) were positive for *Candida* species. It was found that the *C. albicans* (68.3%) was the most common species isolated followed by non-albicans species that are *C. tropicalis* (20.6%), *C. glabrata* (6.3%), and *C. kefyr* (4.8%). Also, it was recorded that the highest prevalence of *Candida* species was within group aged of 36-46 year. Susceptibility tests revealed that the most isolated species of *C. andida* were sensitive to nystatin (95%). miconazole was the next effective drug with 64% sensitive followed by amphotericin B (29%) and clotrimazole (24%). But only 6% of the isolates were sensitive to fluconazole. It can be concluded that the vulvovaginal candidiasis are quite common in Yemen country with a high prevalence. Also, the nystatin remains the effective agent against all isolated of *Candida* species. In contrast, the increase resistance of *Candida* species to fluconazole that commonly used antifungal is an alarming increase of vaginal candidiasis caused by antifungal-resistant *Candida* species.

Keywords: Antifungal, *Candida albicans*, non-albicans *Candida*, vaginitis, Yemen.

Article Info: Received 9 December 2019; Revised 1 January; Accepted 8 January, Available online 15 January 2020

Cite this article-



Humaid A, Alghalibi SM, Al-Mahbashi A, AL-Arossi A, Edrees WH. The prevalence of vulvovaginal candidiasis in pregnant women attending several Hospitals in Sana'a, Yemen. Universal Journal of Pharmaceutical Research 2019; 4(6): 60-64.

DOI: <https://doi.org/10.22270/ujpr.v4i6.338>

Address for Correspondence:

Dr. Wadhah Hassan Edrees, Medical Laboratory Department, Faculty of Medical Sciences, Al-Razi University, Yemen. Tel: +967-771673230, E-mail: edrees2020@gmail.com.

INTRODUCTION

Candida vaginitis is the infection of vagina by several type of *Candida* species, also often called vulvovaginal candidiasis/candidosis^{1,2}. Vulvovaginal candidiasis (VVC) considered to be the most common manifestation of genital candidiasis^{1,3}. It is representing over 25% of infectious vaginitis^{4,5}. It is reported that 75% of women are affected by vulvovaginal candidiasis in their lifetimes³. Also, it was found that more than 40% of women that affected will have 2 or more vulvovaginal candidiasis episodes^{6,7}. Clinical manifestation of vulvovaginal candidiasis is pruritus, vaginal discomfort, burning, and soreness⁸.

The distribution of *Candida* sp. in vulvovaginal candidiasis cases differs widely depending on the geographical location and population studied⁹. Some reports have documented that among women with

acute vulvovaginal candidiasis were caused by *C. albicans* that accounts for 80-90% of all vaginal candidiasis cases, whereas other species are less frequently isolated^{1,10,11}. However, in last year's, there are different species of *Candida* non-albicans that are *C. parapsilosis*, *C. glabrata*, *C. krusei*, *C. lusitaniae*, *C. tropicalis*, *C. dubliniensis*, and *C. guilliermondii* isolated from vaginal samples^{12,13,14}. Misuse of antifungal drugs and lack of effective polices that control the use of antifungal especially against the vulvovaginal candidiasis lead to increase resistant of *Candida* species to several antifungal drugs¹⁵.

There are little reports that documented the prevalence of vaginitis in Yemen. A study by AL-Haik and Al-Haddad¹⁶ reported that among 39.2% of pregnant women have been infected by bacterial vaginosis in Hadhramout city. Also, it was found that 11.1% of

pregnant women attending primary healthcare in Sana'a city have been infected by Trichomonal vaginitis¹⁷. A study, in Sana'a, by Abdul-Aziz *et al.*,¹⁸ revealed that the prevalence of vaginal infection between reproductive-aged women was 37.6% of collected samples. The results showed that 27.2% by bacterial vaginosis, 6.6% by vulvovaginal candidiasis, and 0.9% by trichomonal vaginosis.

To date, no data are available about the prevalence of vulvovaginal candidiasis among the pregnant women and the *Candida* species resistant to antifungal in Sana'a City, Yemen.

Therefore, this study aimed to determine the prevalence of *Candida* species that causes vulvovaginal candidiasis among pregnant women and resistance of isolated species to antifungal in Sana'a City, Yemen.

MATERIALS AND METHODS

Study design and sample collection

Two hundred and fifty (250) specimens were collected from females attending Obstetrics and Gynecology outpatient clinics at different hospitals (AL Kuwait, AL-Thwrah, AL-Gumhorri and Matnah) that located in Sana'a City, in the period from September 2018 to August 2019. All suspected cases were interviewed and patient information was recorded with intended questionnaires including; demographic, age, medical history, and symptoms. High vaginal swabs were taken from the patients by the obstetrician. A sterile cotton wool swab, two swabs of each patient, was inserted carefully into the upper part of the vagina. The samples were immediately transported to the laboratory of the Microbiology Department of the AL- Kuwait Hospital for examination^{3,19}.

Examination of Specimen

Microscopic examination

The first swab was subjected to wet mount examination. One drop of normal saline was added to each sample and shaking vigorously and examined microscopically under 10x and 40x²⁰.

Culture methods

The second swab was cultured on surface of Sabouraud Dextrose Agar (SDA) (Himedia, India) with and without chloramphenicol (250mg/L). The plates were incubated for 48 h at 37°C. The morphological features for colony were studied and confirmed by observing the budding characterization with pseudohyphae by using the Gram tube test. The growth of bacteria on the SDA plates without chloramphenicol was purified on Blood agar and MacConkey agar and identified by biochemical test²¹.

Candida species identification

Candida species were identified depending on morphological features on a culture medium, germ tube formation and carbohydrate assimilation test as the following:

Germ tube test

A small portion was taken from pure colony of *C. albicans* by sterile loop and inoculated into sterile tubes containing 0.5ml of human serum. The tubes were mixed and incubated aerobically for 2h at 37°C. One drop of each serum was transferred to a clean slide

and examined by microscope under high power (x40) to detect the presence of germ tubes that are short hyphal initials²².

Sugar assimilation test

The overnight of culture yeast suspension was added to basal carbohydrate-free medium (II) of molten agar, cooled to 45 °C, and poured to plates and leaved the plates to solidified. Discs saturated with 1% of sugar and placed on the surface of plates and incubated for five day at 37°C. The occurrence of growth around each disc indicates the carbohydrate assimilation of tested sugar. The glucose, D-galactose, maltose, sucrose, lactose, raffinose, xylose and trehalose were used in the sugar assimilation test²³.

Antifungal susceptibility testing

The isolated *Candida* species were subjected to susceptibility antifungal agents by using a disc diffusion method on the surface of Mueller Hinton agar. The antifungal the discs used were Ketoconazole (10mg), Clotrimazole (50µg), Miconazole (10µg), Itraconazole (50µg), Voriconazole (10µg), Fluconazole (100µg), Amphotericin B (50µg) and Nystatin (100µg), (Himedia, India). The inhibition zone was measured after 48h of incubation at 37°C²⁴.

Statistical analysis

The statistical analysis was performed by using program version 20 SPSS (Statistical package for social Science). Percentage and Chi-square test were used to evaluate the degree of the significance with 95% confidence (p<0.05).

RESULTS

The result from the current study revealed that the 250 vaginal swabs were collected from pregnant women who presented with genital manifestations. Only 185 samples (74%) were showed as positive growth in culture media and 65 samples (26%) were reported as negative growth in culture media as shown in Figure 1. This study revealed that an overall isolation rate of candidiasis was 34.06% and 65.94% were bacterial vaginitis from vaginal swabs as listed in Table 1.

From the 63 positive isolates of *Candida* species, it was found that the highest prevalence of vulvovaginal candidiasis was among women from urban (80.20%) compared to women from rural areas (19.80%) as shown in Figure 2.

Also, this study showed that the highest percentage for first time infection was 52/193 (26.9%), while the recurrent infection was 11/57 (19.3%). Table 2 shows that the highest prevalence of *Candida* infection (71.43%) was recorded within the age range of 36-46 year, followed by group aged between 26-35 year (26.99%). While the lowest prevalence of *Candida* infection was reported in age group of 16-25 years (1.58%). In the present study, it was revealed that four species of *Candida* were isolated and characterized by vaginal samples according to sugar assimilation test. It was found that the *C. albicans* (68.3%) was the predominant *Candida* species isolated followed by a higher prevalence of non-albicans species like *C. tropicalis* (20.6%), *C. glabrata* (6.3%), and *C. kefyr* (4.8%) (Table 3).

This study showed that the most clinical symptoms among women with vaginitis and frequency of *Candida* isolated were burning, discharge, and itching (Table 4).

The susceptibility results revealed that the 95% of isolated *Candida* species were susceptible to nystatin. Miconazole was the next effective drug with 64% sensitive followed by Amphotericin B (29%), Clotrimazole (24%), Itraconazole (16%), Ketoconazole (14%) and Voriconazole (11%). Only 6% of the *Candida* isolates were sensitive to Fluconazole as shown at Table 5.

DISCUSSION

Vulvovaginal candidiasis is caused by the overgrowth of yeast in the mucosa membrane of the female genital tract and frequently diagnosed as a daily practice of gynecologist^{14,25}. Of 250 samples examined, 185 samples (74%) showed as positive growth in culture media and 65 samples (26%) were reported as negative growth. This negative culture cases may be infected with *T. vaginitis*. In Sana'a, Yemen, Abdul-Aziz *et al.*¹⁸ revealed that the 37.6% was positive for vaginal infections among reproductive-age women. Also, Al-mamari *et al.*²⁶ in Sana'a, reported that the 94% of vaginal samples of patients were positive growth for vulvovaginal candidiasis.

The incidence of vulvovaginal candidiasis differs from one report to another. In this study, 34.06% of samples showed vaginal candidiasis infection and 65.94% were bacterial vaginitis. In a similar study, in Sana'a, by Abdul-Aziz *et al.*¹⁸ recorded that the bacterial vaginitis was 76.92% reported among reproductive-aged women, while the vaginal candidiasis was 17.69%. In Egypt, Abbas *et al.*,²⁷ reported that the 60.8% of examined women were infected by vulvovaginal candidiasis, 37.1% were infected by bacterial vaginitis, and 2.1% by trichomoniasis. Another study by Bitew and Abebaw¹⁴ reported that only 41.4% of vagina samples were positive growth.

The highest distribution of vaginitis (80.20%) cases in the current study were found in urban areas. This result in agreement with Abdul-Aziz *et al.*¹⁸ who observed that the 88.44% of vaginitis was among reproductive-aged women resident in urban area.

The highest frequency of *Candida* species infection in this study was most commonly seen among the 36-46 years age group and this result is an agreement with Al-Karim *et al.*,²⁸ in Syria. Also, Bitew and Abebaw¹⁴ in Ethiopia documented that the highest vulvovaginal candidiasis was among the 22-44 years age group

The present study showed that the frequency of isolated *Candida* among women with vulvovaginal candidiasis for the first time was 52 (82.54%), while recurrent vulvovaginal candidiasis infection was 11 (17.46%). Most patients in this study did not have immunity disease so the highest percentage was with the first time of exposure according to specialist doctors. This result is an agreement with Sobel,²⁹ in Nigeria.

This study analyzed the predisposing factors of vaginal candidiasis from positive *Candida* isolated; pregnancy has been the most frequently associated risk factor

(33%). This high percentage due to the increased amount of glycogen in the vagina and high levels of estrogen hormones. It provides a good source of carbon, which favors the growth of *Candida* species³⁰, and lowest occur with kidney transplantation (3) and leukemia (2) this may be depended on the type of sample at this study. The result of this study is in agreement with the work of Abu Baker³¹ and Babin *et al.*³². In this study, the frequency of isolated *Candida* among women complained of burning, discharge and itching were (27%) which was the highest percentage. This study has differed with Falahati *et al.*,³³ who showed that the frequency of isolated *Candida* among women complained of discharge was 55 (82.1%), itching 42 (62.7%), and burning 33 (49.3%).

The result of this study was indicated that *C. albicans* 43(68.3%) are responsible for the greatest number of symptoms associated with the vaginal candidosis. This finding is in agreement with the work of Al-mamari *et al.*²⁶ who found that the 65.95% of isolated *Candida* species was *C. albicans*. Another study by Omar *et al.*,³⁴ in Egypt who found that the *C. albicans* was the highest (78.3%) isolated species from infected women by vaginitis. During the last three decades were noticed that the increase in percentage of vaginitis caused by non-albicans species of *Candida*. The present study showed the increase in the frequency of non-albicans species as potential causes of vaginal candidiasis. It was found that the *C. tropicalis* (20.6%), *C. glabrata* (6.3%), and *C. Kefyr* (4.8%) were recorded in this study. This finding was supported by Babin *et al.*,³² in Iran.

In the antifungal susceptibility results, it was reported that the all isolates were highly sensitive to Nystatin and this finding is in agreement with the work of with Al-mamari *et al.*²⁶ and Mahmoudabadi *et al.*,³⁵. In addition, in this study of 63 positive cases, *Candida* species were sensitive to Miconazole and this finding in agreement with work of Al-mamari *et al.*²⁶ and Abruquah³⁶. This study revealed that the most of *Candida* species showed higher resistance to Fluconazole which may be due to frequent use of these drugs as therapeutic alternatives to Amphotericin B. Azole antifungal agents are easy for administration and are less toxic^{9,32,26}.

CONCLUSION

In conclusion, vaginal infections are very common in the region and have a high frequency. It was found that *C. albicans* (68.3%) was the predominant isolated species followed by *C. tropicalis*. All isolates were susceptible to nystatin and fluconazole. This is the first report on the types of *Candida* sp., causing vaginal candidiasis and their antifungal susceptibility patterns in Yemen.

AUTHORS' CONTRIBUTION

The manuscript was carried out, written, and approved in collaboration with all authors.

CONFLICTS OF INTEREST

There are no any conflicts of interest.

REFERENCES

- Achkar JM, Fries BC. *Candida* infections of the genitourinary tract. Clin Microbiol Rev 2010; 253-273.
- Eiderbrant K. Development of quantitative PCR methods for diagnosis of bacterial vaginosis and vaginal yeast infection. M.Sc. Thesis, Linkopings University, Linkoping, Sweden. 2010; 25-114.
- Ishida K, Ueda-Yamaguchi M, Yamada-Ogatta S, Ueda-Nakamura T, Svidizinski T, Nakamura C. Characterization of *Candida* spp. isolated from vaginal fluid: Identification, antifungal susceptibility, and virulence profile. Acta Scientiarum 2013; 35(1): 1-8.
- Corsello S, Spinillo A, Osnengo G, Pena C, Guaschino S, Beltrame A. An epidemiological survey of vulvovaginal candidiasis in Italy. Eur J Obstet Gynecol Reprod Biol 2003; 110:66-72.
- Grigoriou O, Baka S, Makrakis E, Hassiakos D, Kapparas G, Kouskouni E. Prevalence of clinical vaginal candidiasis in a University Hospital and possible risk factors. Eur J Obstet Gynecol Reprod Biol 2006; 126(1):121-125.
- Das-Neves J, Pinto E, Teixeira B, Dias G, Rocha P, Cunha T. Local treatment of vulvovaginal candidiasis: General and practical considerations. Drugs 2008; 68 (13):1787-1802.
- Eschenbach DA. Chronic vulvovaginal candidiasis. N Engl J Med 2004; 351:851- 852.
- Morreira D, Paula CR. Vulvovaginal candidiasis. Int J Gynaecol Obstet 2006; 92: 266-267.
- Deoruhkar SC, Saini S. Vulvovaginal candidiasis due to non-albicans *Candida*: Its species distribution and antifungal susceptibility profile. Int J Curr Microbiol App Sci 2013; 2(12): 323- 328.
- Ben-Haroush A, Yogev Y, Kaplan B. The importance of diagnostic work-up in the management of *Candidal* vulvovaginitis: A prospective study. Clin Exp Ob stet Gynecol 2004; 31:113- 116.
- Boselli F, Chiossi G, Garutti P, Matteelli A, Montagna MT, Spinillo A. Preliminary results of the Italian epidemiological study on vulvovaginitis. Minerva Ginecol 2004; 56:149-153.
- Babic M, Dukie M. *Candida albicans* and non-albicans species as etiological agent of vaginitis in pregnant and non-pregnant women. Bosn J Basic Med Sci 2010; 10 (1):89-97.
- Ameri S, Falahati M, Kordbache P, Zaini F, Rahimi P. Activities of fluconazole in combination with terbinafine against non-albicans *Candida* species isolated from the patients with recurrent vulvovaginal candidiasis in comparison with ciclopirox olamine. Hormozgan Med J 2015; 18 (6): 516-521.
- Bitew A, Abebaw Y. Vulvovaginal candidiasis: species distribution of *Candida* and their antifungal susceptibility pattern. BMC Women's Health 2018; 18:94.
- Richter SS, Galask RP, Messer SA, Hollis RJ, Diekema DJ, Pfaller MA. Antifungal susceptibilities of *Candida* species causing vulvovaginitis and epidemiology of recurrent cases. J Clin Microbiol 2005; 43, 2155-2162.
- AL-Haik WM, Al-Haddad AM. Bacterial vaginosis among pregnant women in Hadhramout-Yemen. Alandalus J Appl Sci 2017; 7(16):23-33.
- Al-Mekhlafi AM, El-Eryani SM. Prevalence and risk factors for *Trichomonas vaginalis* infection among pregnant women seeking primary health care in Sana'a city, Yemen. Yemeni J Med Sci 2017;11:8-14.
- Abdul-Aziz Maha et al. Bacterial vaginosis, vulvovaginal candidiasis and trichomonal vaginitis among reproductive- aged women seeking primary healthcare in Sana'a city, Yemen. BMC Infectious Diseases 2019; 19:879-889.
- Narkwa W. Antifungal susceptibility of *Candida* species and *Cryptococcus neoformans* isolated from patients at the Komfo Anokye Teaching Hospital in Kwnasi. M.Sc. Thesis, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana. 2010.
- Lennox JA, Abbey SD, Udiba D, Mboto CI, Ikpoh IS, Akubueyi FC. Prevalence of vaginitis and vaginosis among University of Calabar female students. J Public Health Epid 2013; 5(4): 167-172.
- Rohde B, Hartmann G, Haude D, Kessieler HG, Langen ML. Introducing mycology by examples. Presented by Schering Aktiengesellschaft. Hamburg 1980; 35-98.
- Isibor JO, Eghubare AE, Omoregie R. Germ tube formation in *Candida albicans*. Shiraze Med J 2005; 6 (1 and 2).
- Jayalakshmi L, RatnaKumari G, Samson SH. Isolation, speciation and antifungal susceptibility testing of *Candida* from clinical specimens at a tertiary care hospital. J App Med Sci 2014; 2(6):3193-3198.
- Clinical and Laboratory Standards Institute (CLSI). Performance Standards for Antimicrobial Disk Susceptibility Tests; Approved Standard. Eight editions. 2005; 58-116.
- Rajkumar R, Radhakrishnan S, Seenivasan C, Kannan S. Culture and identification of *Candida albicans* from vaginal ulcer and separation of Enolase on SDS-PAGE. Inte J Bio 2010; 2(1): 84-93.
- Al-mamari A, Al-buryhi M, Al-heggami AM, Al-hag S. Identify and sensitivity to antifungal drugs of *Candida* species causing vaginitis isolated from vulvovaginal infected patients in Sana'a city. Der Pharma Chemica 2014; 6(1):336-342.
- Abbas AM, Shaaban OM, Badran SM, Shaltout AS, Nasr A, Abdullah SA. Risk factors and health hazards of vaginal infections in Upper Egypt: A cross sectional study. Thai J Obstet Gynecol 2016; 30: 50-6.
- Al-Karim M, Maarouf M, Chahine E. The role of personal and medical factors and general state in fungal vaginitis in Syrian women. J Damascus Univ Health Scien 2007; 23(1): 239-249.
- Sobel JD. Vulvovaginal candidosis. Lancet 2007; 369: 1961-1971.
- Al-Ahmadey ZZ, Mohamed SA. Vulvovaginal candidiasis: Agents and its virulence factors. Mier Res Int 2014; 2(3): 28-37.
- Abu-Baker M. Genotype comparisons of strains of *Candida albicans* from patients with vaginal candidiasis. M.Sc. Thesis, AL-Najah National University, Nablus, Palestine. 2012.
- Babin D, Kotigadde S, Rao P, Rao T. Clinico-mycological profile of vaginal candidiasis in a Tertiary Care Hospital in Kerala. Inte J Res Bio Sci 2013; 3(1):55-59.
- Falahati M, Akhlaghi L, Abianeh M, Assadi M, Nami S, Fateh R. Prevalence of *Candida albicans* and *Trichomonas vaginalis* infections in Women. Life Sci J 2013; 10(5): 479 -484.
- Omar MS, Abbas AM, Moharram AM, Farhan MM, Hassanen IH. Does vaginal douching affect the type of *Candida* vulvovaginal infection? Mydical Mycol 2015; 53(8):817-827.
- Mahmoudabadi AZ, Najafyan M, Alidadi M. Clinical study of *Candida vaginitis* in Ahvaz, Iran and susceptibility of agents to topical antifungal. Pak J Med Sci 2010; 26(3):607-610.
- Abruquah HH. Prevalence and antifungal susceptibility of *Candida* species isolated from women attending Gynaecological clinic in Kumasi, Ghana. J Sci Tech 2012; 32 (2): 39-45.

Table 1: The types of microorganisms isolated from vaginal swabs samples

Type of isolation	Number of sample	Percentage
Candidiasis	63	34.06
Bacterial vaginitis	122	65.94
Total	185	100

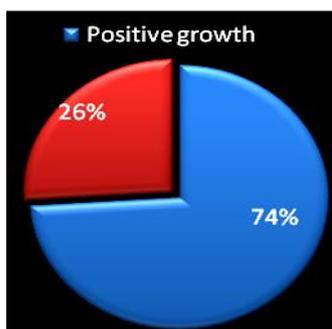


Figure 1: The sample positive and negative growth in culture media

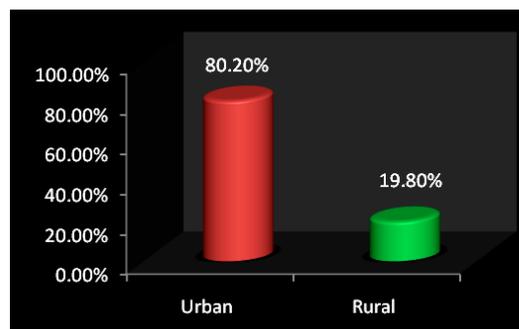


Figure 2: Percentage of candidiasis infection according area

Table 2: The frequency of *Candida vaginitis* infections according to age

Age interval	Total tested		Positive <i>Candida</i> species		P. value**
	No.	%	No.	%	
16-25	17	6.8	1	1.58	0.056
26-35	183	73.2	45	71.43	
36-46	50	20	17	26.99	
Total	250	100	63	100	

Table 3: Distribution of *Candida* species according to sugar assimilation test

<i>Candida</i> spp.	GIU	SAC	LAC	TRE	RAF	GAL	MAL	Xyl	GT
<i>C. albicans</i> 43 (68.3%)	+	+	-	+	-	+	+	+	+
<i>C. tropicalis</i> 13 (20.6%)	+	+	-	+	-	+	+	+	-
<i>C. glabrata</i> 4 (6.3%)	+	-	-	+	-	-	+	-	-
<i>C. kefyr</i> 3 (4.8%)	+	+	+	-	+	+	-	+	-

GIU : Glucose , SAC: Sucrose , LAC: :actors , RAFE: Raffinose , GAL: Galactose ; MAL: Maltose , XYL : Xylose and GT: Germ tube.

Table 4: Clinical symptoms of vaginosis between positive and negative candidiasis cases

Symptoms	Total		<i>Candida</i> isolated		P. value
	No.	%	No.	%	
Itching					0.475
Yes	202	80.8	54	27	
No	48	19.2	9	19	
Total	250	100	63	46	
Burning					0.067
Yes	228	91.2	61	27	
No	22	8.8	2	9	
Total	250	100	63	36	
Discharge					0.172
Yes	203	81.2	55	27	
No	47	18.5	8	17	
Total	250	100	63	44	

Table 5: Sensitivity of isolated *Candida* sp. to tested antifungal drugs.

Antifungals	Number of effected <i>Candida</i>	Percent
Nystatin	60	95
Miconazole	40	64
Amphotericin B	18	29
Clotrimazole	15	24
Itraconazole	10	16
Ketoconazole	9	14
Voriconazole	7	11
Fluconazole	4	6