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Isolation of Candida albicans from some patients who attend hospitals and clinics in the city of Basra in southern Iraq and testing the effect of plant extracts that reduce the growth of these fungi

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Abstract: Candida is one of the serious opportunistic fungal pathogens that causes candidiasis. Recently the number of people infected with AIDS worldwide who can contract candida has increased. It is also one of the common fungi that infects humans in the mouth and genitals. Presence of candida in the blood is a serious infection. Candida causes of common infection in blood stream in the USA.
Candida fungus was isolated from some patients who visited a number of hospitals in Basra governorate for the purpose of obtaining infected samples. The aim is to know the (antagonistic activity) of extracts of a number of plants as an inhibitor of Candida growth.

Keywords: Candida albicans: antifugai agent: antagonistic activity:Mentha spp

Abbreviation: SMA : Sabourud maltose agar: LPCB Lactophenol Cotton Blue

Introduction:

Fungal diseases are diseases that are caused by very tiny organisms called fungi. It invades Different parts of the human body such as the skin and lungs, genital areas, and mouth. Fungi exist in water, air and soil. Some fungi that cause diseases in humans are free-living and cause disease by inhalation or entering their spores through wounds and scratches. Fungal diseases have started to increase in prevalence in the recent periods they grow and multiply slowly. (*Prescott , M.; P.Harley and A.Klein. 2001*)**.** Candida albicans exists in yeast form in humans microbiome(*D, F.L.; Wilson,.; Hube, Mayer,*) Moving from yeast to filamentous Transitional manifestation of the disease is the form (*Tsui, C.; Kong, E.F.; Jabra-Rizk).* Candida albicans is part of the normal microbiota in approximately 50% of individuals (Johnson ,Nobile, C.J. A.D*).* Candida infection has various Syndrome Symptoms, from the superficial mucosal skin Invasive infection disorders that affect multiple organs(*Hube ,Naglik,; Challacombe, S.J.; J.R,*). Candida infection is opportunistic in most cases because Candida albicans is a naturally symbiotic fungi. But, When the host's immunity is weakened due to Many possible reasons, pathogen infection May occur.(*Y.; Zhang, L.; Xu, Qin, Z.;, J., Y.Y; Cao, Y.; Jiang Zhang, Yan, T*). Candida infect joints and bones either due to trauma or due to blood seeding, intra-articular injection, use of parenteral drugs or a surgical procedure. Osteoarthritis often becomes symptomatic months or years after surgery or thrush.(*J.R, M.D.; Perfect, Johnson).* Clinical signs of candida in the skin and gastrointestinal mucosa, oral cavity as well as in gas attacks. There is a risk of an infection in the immune system. *(Mehta ,Robertson, K.D.; Nagra, N. D*). Persons (Esophagitis and AIDS caused by Clostridium albicans is a malignant hematoma and organ transplant patients), and in patients with comorbidities such as alcohol consumption, diabetes, radiotherapy, glucocorticoids, chemotherapy, , old age.(Mounmin, A.A.; Lu, X.L.; Mohamed, F.A).

Material & methods :

1- SMA- Sabourud maltose agar
2- LPCB
3- Slide and cover slide
4- Cotton

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5- vegetable powder
6- forceps
7- microscope
8- sensitive balance
9- water bath
10- incubator

Methods:

Preparation of Sabourud maltose agar:

SMA is used for culturing yeast, mold and acidic organisms as well as testing for antifungal agents. Prepare 45.0 grams suspension in 1000 ml from distilled water. Heat to boiling until the medium is completely dissolved. Sterilization with pressurized steam at 15 pounds (121°C) for 15 minutes.

Antibiotics added to the SMA:

- ✓ Chloramphenicol
- ✓ Neomycin

Sometimes it is obtained ready-made and added to the culture medium.

Preparation of plant extracts:

Plant extracts were prepared by soaking method, where 10 g of each plant extract was taken and placed In a beaker containing 100 ml distilled water, The beaker was placed in a water bath at 120°C and left to cool for an hour, after which the plant extracts were filtered by filtration method.

Preparation of tablets saturated with plant extracts:

Plant extract tablets were made in diameter (5 mm) and then these tablets were dipped in plant extracts for 10 min and placed in medium containing fungal growth and monitored at room temperature for 12days.

Result:

Samples were isolated from some patients in Basra city hospitals. Visits were made at random to hospitals. Samples were taken from swabs from the vaginal area and from the mouth and cultured on a medium of blood agar, then the incubator was placed at 37 degrees and the dishes were followed periodically for three days. In order to differentiate the growth of fungi and bacteria, the developing colonies were taken in blood agar medium and grown on MacConkey agar medium, allowing the fungi to also grow and the dishes were kept for 24-48 h at 37 °C. Then, the developing colonies were seeded on McConkey agar on SMA medium for the purpose of determining the type of developing colonies. It was found that the presence of white colonies tends to a waxy pale yellow color, which indicates the presence of Candida fungi..

no-patients	People who are not infected with Candida	People infected with candida
100	70	30

Table No. 1 shows the rate of infection with Candida fungus

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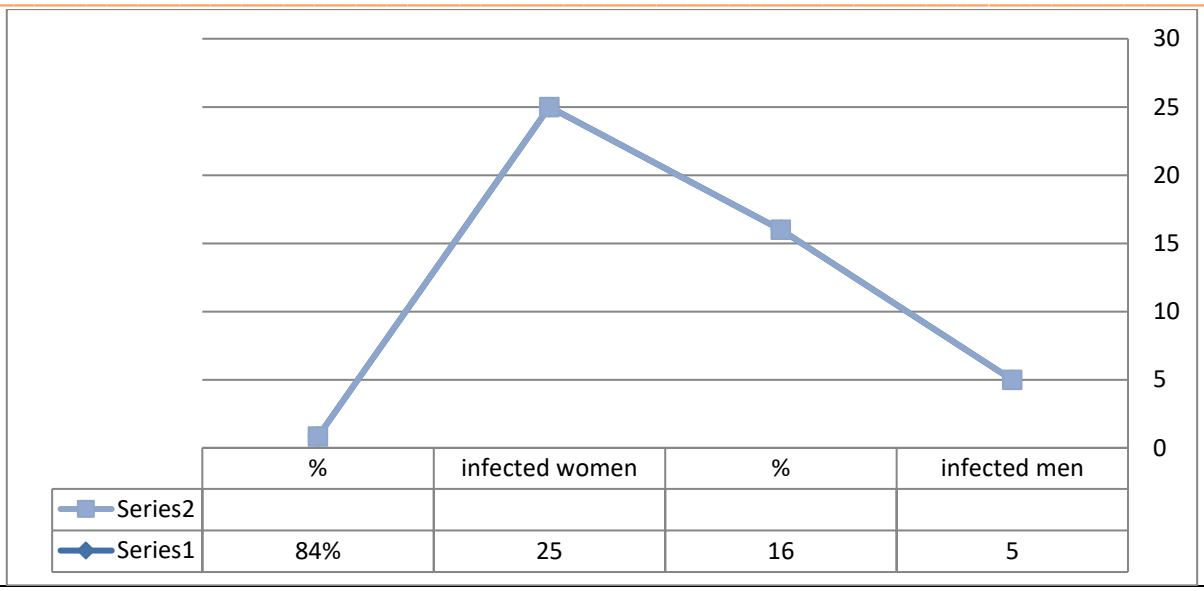

Figure 2 shows the infection rate for men and women out of the total samples

Type of plant extract	Colony diameter Cm	Inhibition percentage
negative	9	0%
Rosemary	8	16.3
Castor bean	8	10.5
Mint	8	6.3

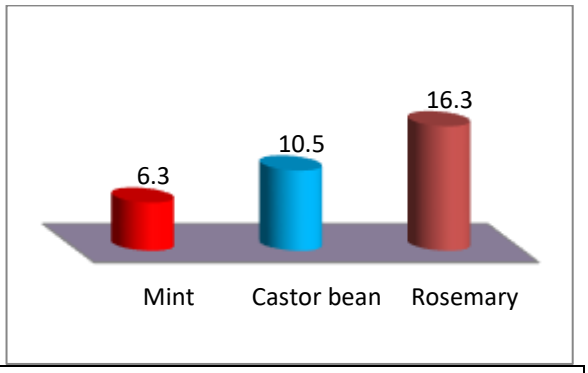

Figure 3 shows Inhibitory effect of plants (rosemary, castor and mint on candida growth)

Discussion & Conclusions:

The Candida fungus was isolated from some patients attending a number of hospitals in Basra Governorate for the purpose of obtaining infected samples. The aim is to know the (anti-activity) of extracts of a number of plants as an inhibitor of the growth of Candida and to test the inhibitory activity of the fungus, whereby tablets saturated with 5 mm diameter plant extracts were placed. In the middle (SMA) contains Candida colonies. Five saturated tablets of the extract (mint, rosemary, and castor bean) were placed in each plate and three plates (each extract in one plate) were used and monitored for 12 days at room temperature.

Table (1), shows the rate of infection with Candida fungi as the infection reached 30% of the total number. Table (2), shows the infection rate for men and women out of the total samples. Where the results showed an increase in Candida infection in women than in men, where it was 84%, the infection rate among women out of the total infected samples, while the infection rate among men was 16%. The reason is because women are more susceptible to Candida infection due to infections in the genital areas and the presence of moisture, which represents Suitable medium for the growth of candida Purpose of isolate Candia to test the efficiency of plant extracts in inhibiting growth. Figure (3) shows Inhibitory effect of plants (rosemary, castor and mint on candida growth) The results of studying the inhibitory effect of rosemary extract and castor bean extract showed unequal growth of the Candida fungus. The average colony diameter was 8 cm. inhibitory effect of rosemary extract It inhibited the growth of the fungus by 16.3% compared to control positive (*M.D Bukar,A.;Mukhtar, ; Adamu ,S.(2009)).*

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The colony diameter of 9 cm and the growth percentage was 100%.The inhibitory activity of the rosemary plant is attributed to its volatile oils, which have an effective role in the elimination of fungi. *(S.. H . P .; Travis ; Walker Bais , H .P)*

While the inhibitory effect of the average castor bean colony diameter of 8 cm was 10.5%, which inhibited the growth of the fungus compared to the positive control. But at a lower rate than rosemary extract and inhibitory effect of the Mint average colony diameter of 8 cm was6.3% which inhibited the growth of the fungus compared to the positive control. From here, the inhibitory effect of extracts in different proportions, respectively, of rosemary, castor and mint, which can be used to reduce the growth of Candida fungus.

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