

Cichorium Intybus Active against Yeasts: A Precise Study in a Hospital

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Abstract:-

Aims and Objectives:- Infections due to fungus are a new risk in the health care system .now a days number of immunocompromised patients and neonates get infected and die due to mycosis. The fungal infections in neonates and other adult patients suffering from different ailments are due to candida species. By culturing the organism from body fluids and blood samples the diagnosis can be made possible. The objective to study these organism is to identify the risk associated with candidemia. Candida causes infection in all body tissues including (dermis, ocular ,pulmonary, cardiac, nails, GIT , UTI, joints etc), the patients surviving after severe Candidiasis are at high risk of number of malformations and diseases and need many procedures for correction. The purpose of this study is to assess the effects of extracts of chicory on different Candida species in a hospital environment.

Keywords:- Mycosis, Candidemia Neonates, Adult , Dermis , Candidiasis.

I. INTRODUCTION

Cichorium intybus species belongs to family Asteraceae. Some species of Cichorium among hundreds are used in culinary [1]. The plant is cultivated in different countries of world including Africa, Europe, Asia, Russia , North America and Egypt [2]

In India chicory has been used as traditional drug to treat weakness, diarrhea, in postpartum as tonic to ladies, splenic infections, hepatitis, hepatic ailments, arthritis and increased in uric acids[3],[4] This plant is used traditionally to treat some life threatening diseases like , HIV and AIDS, cancer, diabetes, menstruation problems, infertility ,sleeping disorder , minor cardiac ailments, gall stones, gastric and intestinal problems, sinusitis, wounds and bruises. it is most popular for its tonicity upon GIT and Hepatic problems. In Germany, chicory flowers are used as a homemade medicine for everyday infections. The roots are roasted and used instead of coffee with no caffeine and used as fodder with fibers for cattle's etc.

C. intybus is a miracle plant as it contains higher concentrations of Inulin which is fructo- oligosaccharide (FOS) a polysaccharide, in its roots due to which it has high economic values, and is used to add sweetness and fat. Inulin is a carbohydrate which contains a chain of fructose and a terminal glucose unit. Inulin is mainly present In vegetables such as onion, asparagus, garlic, dahlia, and

chicorium.[6] Inulin is particularly used in making of low-fat or fat-free products, as its texture is creamy and has gelling capacity it is also used in chocolates, ice creams, cheese, and confectionery etc Raftiline and raftilose are used in place of fats and sugars in foods.[7,8]

The experiment has been obtained as the interest is increasing in studying chicory because it can be added in our daily foods as veggies and salads., its nutritional value is high and is used as medicine in day to day life. Hence, the plant is studied for its effective properties and uses.

II. DISCUSSION

In this study we test chicory extracts for anti candidal effects such as, C.albicans, C. glabrata C. famata, C. krusei and C. tropicalis— the plant extract was tested and the results showed that the chicory was effective against C. glabrata and C. krusei , the results obtained showed that, C. krusei and C.glabrata. Were more sensitive to chicory extract than other candida and among the two candida kruei was more sensitive than candida glabrata , as the diameter of zone of inhibition of extract was more against C. krusei than that of C. glabrata, and C. albicans was resistant against the plant .

The resistance against antibiotics is increasing globally due to using number of anti fungals, antibiotics and other drugs, due to which the fungal infections increases as compared with past especially C. glabrata and C. krusei.The increasingly use of antifungal drugs produces many side effects and resistance, previous studies showed that no drug works against candida infections, and if a patient uses thiazole drugs (like fluconazole) for long-term , especially in immunodeficient patients in C. glabrata and C. krusei.[9,10,11] .

Number of studies and experiments In recent years have revealed that, some medical drugs and some medicinal plants have the same effects against fungus which includes Chicory (Cichorium intybus) a plant from the Asteraceae family which is more effective as certain drugs and its compositions has been used in many treatments and experiments recently in the science . Studies shows that chicorium intybus extract is used as antibacterial, antifungal and antimalarial, as anti-inflammatory, pain killer, in cancer, diabetes, Gastrointestinal Tract septicemia, and as stimulant for liver.

Certain studies revealed that chicory extract has broad spectrum effects and kills both types of bacteria such

as *S. epidermidis*, *Staphylococcus aureus*, *Bacillus subtilis* and *Micrococcus luteus* and the G-negative bacteria such as *Pseudomonas aeruginosa*, *E. coli* and *Salmonella typhi* etc which are gaining resistance day by day .[12,13,14,15] The experiments revealed that chicory has a powerful anti bacterial effects on the Gram-positive and Gram-negative bacteria. Chicory also helps to stop dental caries by using it instead of coffee as it kills *Streptococcus mutans* which is a part of dental plaque and causes dental caries . This substitute of coffee stop the organism to attach to the tooth surfaces which helps the bacteria to stop sticking to the teeth and producing thin films.[14] Furthermore, *Chicorium intybus* is also active against few viruses e.g. few Herpes virus and adenovirus .[15]

- The part of the chicory plant
- The chicory
- The type of solvent used for preparing the chicory extract:

Ethanollic extract of *Chicorium intybus* have more effects than other solvents and it increases the antimicrobial effects superior to others.18,26,32 of their resistance: The low cost ,easy availability and no side effects of *Chicorium intybus* helps the medical world as different candidas have different resistance in various conditions .34. And the effects of this extract on candidas like, *C. glabrata* and *C. krusei* is good, so it is desired that cichory extract can replace ant fungal drugs for treatment in future years.

- Different concentrations based on the applied methods fo
- The studying microorganism type and differences in the rate JCDP

III. MATERIALS AND METHODS

Plant Extract Preparation

To prepare the extract, the leaves were dried accordingly and after being dried completely then powdered; , 1,000 gm of grained powder was kept in water and ethanol composition for 72 hours. Then, the solvent was filtered through a Whatman paper filter, with the use of a Rotary Evaporator the water was vaporized, and concentrated liquid was obtained. The extract was kept at below 20°C till used again.

This study was accomplished at the SMHS hospital Srinagar, the blood samples of the infected patients have been taken and cultured in the laboratory from many years . With all aseptic precautions, 1–2 MI of blood was taken, dropped in conventional and automated blood culture bottles and incubated for 24 hours were kept in BacTAlert 3D automated machine. The samples were Gram stained and studied under microscope and then sub cultured on blood ,Mac Conkey agar and SDA plates aerobically.. The identification was done by morphology of colonies on SDA, germ tube test, (chrome media) or HI- chrome media, and other tests.[20]. Identification was confirmed with Vitek using Vitek 2 cards. The ID and AST cards were chosen on the basis of results of Gram staining.

IV. AUTOMATED AND CONVENTIONAL (BLOOD) CULTURE BOTTLE



BAC T ALERT POSITIVE BLOOD BOTTLE



POSITIVE CONVENTIONAL BLOOD BOTTLE

Fig 1

In this analytical study of samples from clinically infected patients , which were collected with all aseptic precautions, were cultured on chrome media as stated below to look for different *Candida* spp. *Candida* isolates were speciated by CHROME media, ,serum germ tube test and Vitek.



Fig 2:- Chrome Media for candida

The antifungal effects and minimal inhibitory concentrations of cichory extract was evaluated according to (CLSI). *Candida* was obtained, also for further confirmation about the antifungal susceptibility test, the agar well diffusion method was also used

V. RESULTS

The MIC of chicory extract was 50 and 100 µg/mL for *C. krusei* and *C. glabrata* respectively and less efficient for other candida. Agar well diffusion method was used to evaluate different concentrations of cichory extract; In similar concentrations the zone of inhibition was large around *C. krusei* and small around *C. glabrata*. The result obtained by both the methods proved that sensitivity of *C. krusei* was greater than *C. glabrata* which was greater than other candida.

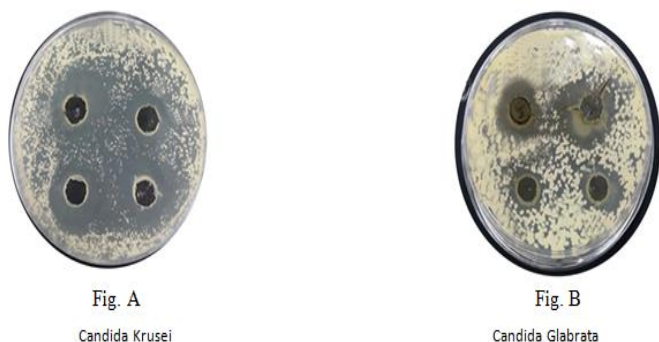


Fig 3:- Candida Krusei shows more zone of inhibition than Candida Glabrata

VI. CONCLUSION

Chicorium intybus extracts is economical, handy, antifungal and many other benefits. It has few harmful effects, and after clinical trials, it could prove to be the best antifungal agent against *C. glabrata* and *C. krusei*

VII. CLINICAL SIGNIFICANCE

Results obtained showed that chicory extract has antifungal properties and must be used as an antifungal agent because it is economical, easily available, and have less side effects.

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