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ANTIFUNGAL EFFECTS OF CHAMOMILE TEA EXTRACTS ON CANDIDA ALBICANS.

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ABSTRACT-

Purpose-

Due to increased risk for opportunistic fungal infections and increasing prevalence of hospital infections caused by fungus resistance to antifungal drugs, discovery of antifungal compounds with high efficiency is necessary. This study was aimed to evaluate and compare the antifungal activities of Martricaria chamomilla on Candida albicans.

Methods-

In this study the plants extracts were prepared with Soxhlet extraction method. The amount of Minimum Inhibitory Soxhlet method using methanol 50% Antifungal activities of the extracts were performed on candida albicans.

Results-

extracts of chamomile exhibited moderate antifungal activity against C. albicans. This justifies standard antifungal agent (Ketoconazole) was show zone of inhibition.

Conclusion-

The results indicate the chamomilla extracts are effective, but possesses the highest antifungal activity on Candida albicans. If clinical trials approve these findings, this plant may represent a new source of antifungal agent for control of Candida albicans.

Keywords-

Antifungal, Soxhlet extract, chamomile, C. albicans.

INTRODUCTION-

There is a growing interest in medicinal plants all throughout the world. Researchers and the general public agree that natural products mostly those made from plants have positive effects on human health [1]. The Compositae family includes chamomile (Chamomilla recutita), which is native to Europe, North and South America, and East Asia. The following nations produce chamomile for the global market: Brazil, Chile, Peru, Argentina, Egypt, Bulgaria, Hungary, Spain, Czech Republic, and Germany [2]. The literature contains a plethora of research findings regarding the medical uses of chamomile. For example, chamomile has anti-inflammatory and antibacterial properties (3) This study aimed to isolate, genetically identify, test the susceptibility of human-associated Candida albicans, and evaluate the efficacy of methanol extracts (ME) derived from Matricaria chamomilla (chamomile) flowers against the fungi that were isolated. Moreover, use Soxhlet Extraction analysis to look into the ME chemical composition and find the active ingredients. In the human digestive, vaginal, and oral mucosa, Candida species are commensal microorganisms. Normally, this opportunistic fungus may be kept in check by those with robust immune systems. Serious infection, however, may result when the host becomes frail and immunocompromised. These infections might be superficial, like thrush, vaginitis, or skin infections, or they can enter the circulation and spread to any part of the human body, leading to a host's brain abscess, endocarditis, meningitis, arthritis, and pyelonephritis, among other clinical consequences [4].

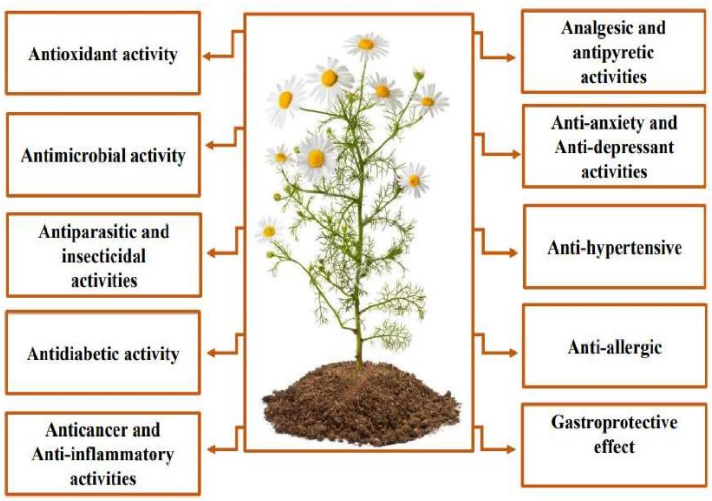

Fig1: Activity of chamomile tea.

MATERIAL AND METHODS-

Plant-based material-The Central Administration of Horticulture and Agricultural Crops, Ministry of Agriculture and Land Reclamation (Egypt), bought and identified the chamomile seeds (Matricaria chamomilla), milled them prior to extraction. The chamomile flowers were bought at Neutraved Xpotim Enterprises 336, Shyam Nagar NX-A-MR-10, Indore (MP)PIN-452010. (5)

Fig 2: Flowers of chamomile.

Preparation of crude aqueous extracts-

Extraction method-

Extraction using Soxhlet addition to being a method for a Soxhlet extraction is also used as a benchmark for comparing older extraction methods [6]. For the purpose of extracting herbs, a Soxhlet apparatus is used. The sample is put into a thimble holder and fresh solvent is progressively added from a distillation flask liquid reaches the overflow level. This moves the aliquot back into the distillation flask and introduces the extracted analyses into the bulk liquid. This procedure keeps going till the extraction is finished. As the solvent is circulated through the sample, the system runs continuously using a rotary evaporator at controlled temperatures and low pressure, the extracts are extracted by filtering off the solvent [7]. This extraction method uses a heat source that is delivered directly to the distillation flask to maintain a high system temperature (at the solvent boiling point). This approach is also very easy and reasonably priced [8] Soxhlet extractions are constrained by the lengthy extraction procedure and the substantial amounts of extractants (solvent) needed. The solvents can damage the environment and be expensive to clean. (9) The extraction was carried out for 120 min in 100 mL of methanol.

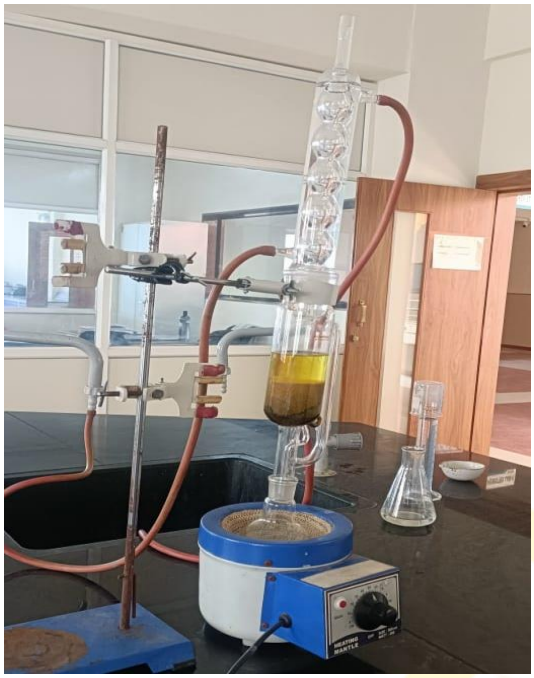

Fig 3: Soxhlet Extraction.

Fig 4: Extract of chamomile.

Microorganisms and media-

The antifungal activity of aqueous extracts is tested against Candida albicans. The strains were grown on agar media.

Preparation of the inoculums-

Culture media-

sterilize all glassware in autoclave then follow the procedure.

Procedure-

Take 28gm agar,1gm aqueous extract,5gm NACL,1gm peptone, distilled water 1 liter.
Agar plate media was prepared by adding 28gm of nutrient agar powder in 1liter of distilled water heat the mixture and dissolve all components. The dissolved mixture is put in autoclave at 121C for 15min, put it into Incubator. (24hrs).

Screening for antifungal activity-

There was an Well Diffusion Method. A stock solution was prepared by adding 28gm of nutrient agar powder in 1liter of distilled water heat the mixture and dissolve all components. The dissolved mixture is put into autoclave at 121C for 15min,allow cooling but not solidifying .Then inoculated the given antifungal agent(Ketoconazole) into Agar media and pour into plate allow untill solidified.by using agar well diffusion method, holes about 9mm diameter in the same medium The antifungal solution of chamomile tea extract directly placed in the holes. The plates are incubated and reported in table no-1 and shown in figure no-5

Fig 5: Zone of Inhibition (In mm)

RESULT AND DISCUSSION :-

It has often been reported that aqueous extract not have biological activity. However in this study, extracts of chamomile exhibited moderate antifungal activity against C. albicans. This justifies standard antifungal agent (Ketoconazole) was show zone of inhibition.

1.Antifungal activity of chamomile extract against C. albicans.

Sr. No.	Sample Name	Chamomile tea	Standard antifungal agent (Ketoconazole)
1.	Zone of Inhibition (in mm)	18 mm	25 mm

CONCLUSION

In this study, the antifungal effect OF Chamomile Tea extracts were determined on against Candida albicans that as show the zone of Inhibition (mm) plant extracts, growth of fungi was limited and since the chemical antifungal drugs are too expensive and also have some side effects and Harmful for patients, so if the herbal medicines produce, can be reduced side effects and drug resistance to chemical drugs. Further studies are needed to increase the efficiency of extraction methods to increase phenolic and flavonoid proportions in extracts.

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