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RESEARCH ARTICLE

ANTIFUNGAL ACTIVITY OF TERMITOMYCES.

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Abstract

Mushrooms are the macro fungi group which has many valuable properties, like antitumor, ant cancerous, antibacterial, antifungal etc. We use these fungi for the treatment of various diseases. Researchers showed antimicrobial activity of several mushrooms. Most of the Mushrooms extracts are widely used as traditional medicinal ingredients for the treatment of various diseases and related health problem. The mushroom *Termitomyces* was selected for in-vitro studies against selected pathogenic micro organism to investigate the efficacy of their different (methanolic, ethanolic, aqueous) extracts. The antifungal activity of various solvent extracts of *Termitomyces was tested against five species of fungus Aspergillus flavus, Aspergillus niger, Candida albicans, Penicillium notatum, Muco rracemous*. The different extracts showed wide spectrum of a fungal activity. The highest antifungal inhibitory activity (4.95mm) was recorded with the extract of methanolic extract of *Termitomyces* against *Penicillium notatum*.

Introduction:-

Mushrooms must produce and secrete antifungal compounds of survive in the wild against competing or pathogenic organism since the mushrooms always grow in those places where the possibilities of finding the microbes is severe. Hence mushrooms must have strong antifungal properties to fight such fungus microbes to survive. The *Termitomyces* is the mushrooms that grow on comb like structures made from fecal pellets which are made of digested plant material passed quickly through the termite gut. Oso (1977) and 1981 reported that *Termitomyces* as powerful medicinal ingredient for the treatment of gonorrhea among the traditional doctors in the south eastern Nigeria. This medicine which is administered orally is prepared by grinding a large quantity of *Termitomyces* with the help of the fruit of *cucurbita peop Linn* the leaves of *cassia alata Linn* and some other ingredients.

Materials and Method:-

Mushroom:-

Termitomyces was collected from the forest from the comb like structures make from fecal pellets, which are made of digested plant material passed quickly through the termite gut. Fruiting bodies were dried and specimen deposited in Research laboratory. Micro-organisms tested: The pathogenic fungus is used in the study. Fungus used was *Aspergillus flavus, Aspergillus niger, candida alicans, penicillium notatum, Mucor racemosus*. These fungal Pathogens were seeded into potato dextrose agar medium (one organism per plate).

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Preparation of Extracts:-
The fruit bodies of mushroom were cut into bits and dried at 40^0c.These dried bits were pulverized in a moulinex blender and 50 grams each of the powdered samples were soaked separately in 300 ml of 95% methanol, ethanol and distilled water separately and allowed to stand for 7 days for extraction. It was filtered through Whattman filter paper no. I and concentrated in a rotary evaporator at 40^0c. The methanol and ethanol was recovered and the extract was collected and dried. The test residues were prepared as stocks using distilled water (40 mg/ml) and were tested for their antifungal activity by filter paper disc diffusion techniques.

Setting of experiment:-
The agar plates were prepared by pouring about 10 to 15ml of sterilized PDA medium in each Petridis which were previously sterilized. These agar plates were inoculated with the spores of the test fungus and incubated for 6 to 8 days so that spores were germinated properly. Sterilized whattman no. I filter paper disc were saturated separately with the different extracts and placed on the surface of the seeded plates of agar and incubated at 27^0 c for specific period (up to 8 Days). The diameter of the inhibition zone was maximum dimensions of the zones around the disc. All the experiments were taken in triplicate, the average reading were recorded. At the incubation period the diameter of the growth of inhibition zone was measured, standard deviation based on three replicated was calculated and the results present in the form of tables.

Statistical Analysis:-
The data was subjected to analysis of variance (ANOVA) using statistical software. Means of three observations were compared with $P_0 \leq 05$ for determining the statistical significance.

Resultand Discussion:-

It was noted from the various extracts (Methanolic, ethanolic and aqueous) of *Termitomyces* possessed varying degree of antifungal properties. The different extracts of *Termitomyces* have poor antifungal properties shown in table. The three extracts are only active against A. *niger* and *P. notatum* whereas these are inactive against *A. flavus, C. albicans, M. racemosus*. The maximum zone of inhibition noted in ethanolic extract *for P. notatum* (5.00mm) and the minimum zone of inhibition shown for methanolic against *A. niger* .Hatvani (2001) tested the culture fluid of the mushroom *L. edodes* and found that it exhibited poor activity against the yeast *candida albicans*. Likewise in this experiment the various extracts of mushroom used *Termitomyces* exhibit poor activity against various fungal pathogens used in the study.

Table:-

Fungal Pathogens	Controlled Amphotericin	Zone of inhibition (mm)			
	(10 kg/ml)	Methanol	Ethanol	Aqueous	P value
Aspergillusflavus	25±.5	I	I	I	-
Aspergillusniger	24±.4	3.0010.5	3.0010.5	3.50±0.6	0.4651
Candida albicans	15±.4	I	I	I	-
Penicilliumnotatum	22±1.2	4.95±0.8	5.00±0.9	4.00±0.5	02633
Mucorracemosus	20±8	I	I	I	-

I=Inefficient

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