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Coupling Compounds Behavior on Types of Fungi

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Abstract

In our past work , some coupling azo- compounds were formatted characterized , chemical identification , which appeared good evidences for production our azo-coupling compounds , while in this paper , these azo-coupling derivatives were studied against types of fungi.

Keywords: against , good , study .

Introduction

Azodyes are released into the environment through the textile with dyestuff; azo dyes form the largest and most important group followed through triphenylmethane dyes. Most of these dyes are mutagenic and carcinogenic. The waste water treatment systems used are unable to completely remove the recalcitrant dyes from the effluents [1-3]. Some triphenylmethanederivatives have been found in the soil due to improper waste disposal [4-8]. Azo dyes[9-20] are most resistant to antibacterial attack[21-31] ; however, ligninolytic enzymes of the white - rot fungus Phanerochaetechrysosporium degrade at least two azo compounds under special conditions.

Fungi have a worldwide distribution, and grow in a wide range of habitats, including extreme environments such as deserts or areas with high salt concentrations[33] or ionizing radiation,[32-40] as well as in deep sea sediments.[41] Some can survive the intense UV and cosmic radiation encountered during space travel[42] Most grow in terrestrial environments, though several species live partly or solely in aquatic habitats, like the chytrid fungus. Batrachochytriumdendrobatidis, a parasite that has been responsible for a worldwide decline in amphibian populations. This organism spends part of its life cycle as a motile zoospore, enabling it to propel itself through water and enter its amphibian host.[43] Other examples of aquatic fungi involve those living in hydrothermal areas of the ocean[44]

Fungi can be single celled or very complex multicellular organisms. They are found in just about any habitat while some live on the land, mainly in soil or on plant material rather than in sea or fresh water.

Most fungi[45-56] lack an efficient system for the long-distance transport of water and nutrients, such as the xylem and phloem in many plants. To overcome this limitation, Most fungi, like . Mallaria, form rhizomorphs[57] which resemble with perform functions similar to the roots of plants. As eukaryotes, fungi possess a biosynthetic pathway for producing terpenes that uses mevalonic acid and pyrophosphate as chemical building blocks[58] Plants and some organisms have an additionalterpenebiosynthesis pathway in their chloroplasts, a structure fungi and animals do not have[59-62] Fungi produce several secondary metabolites that are similar or identical in structure[63-74] to those made by plants[75] Many of the plant and fungal enzymes that make these compounds[76-81] differ from each other in sequence and other characteristics, which indicates separate origins and convergent evolution of these enzymes in the fungi[82-90] and medicinal plants

The growth[91-96] of fungi as hyphae on or in solid substrates or as single cells in aquatic environments is adapted for the efficient extraction of nutrients, because these growth forms have high surface area to volume ratios

Experimental &Materials :

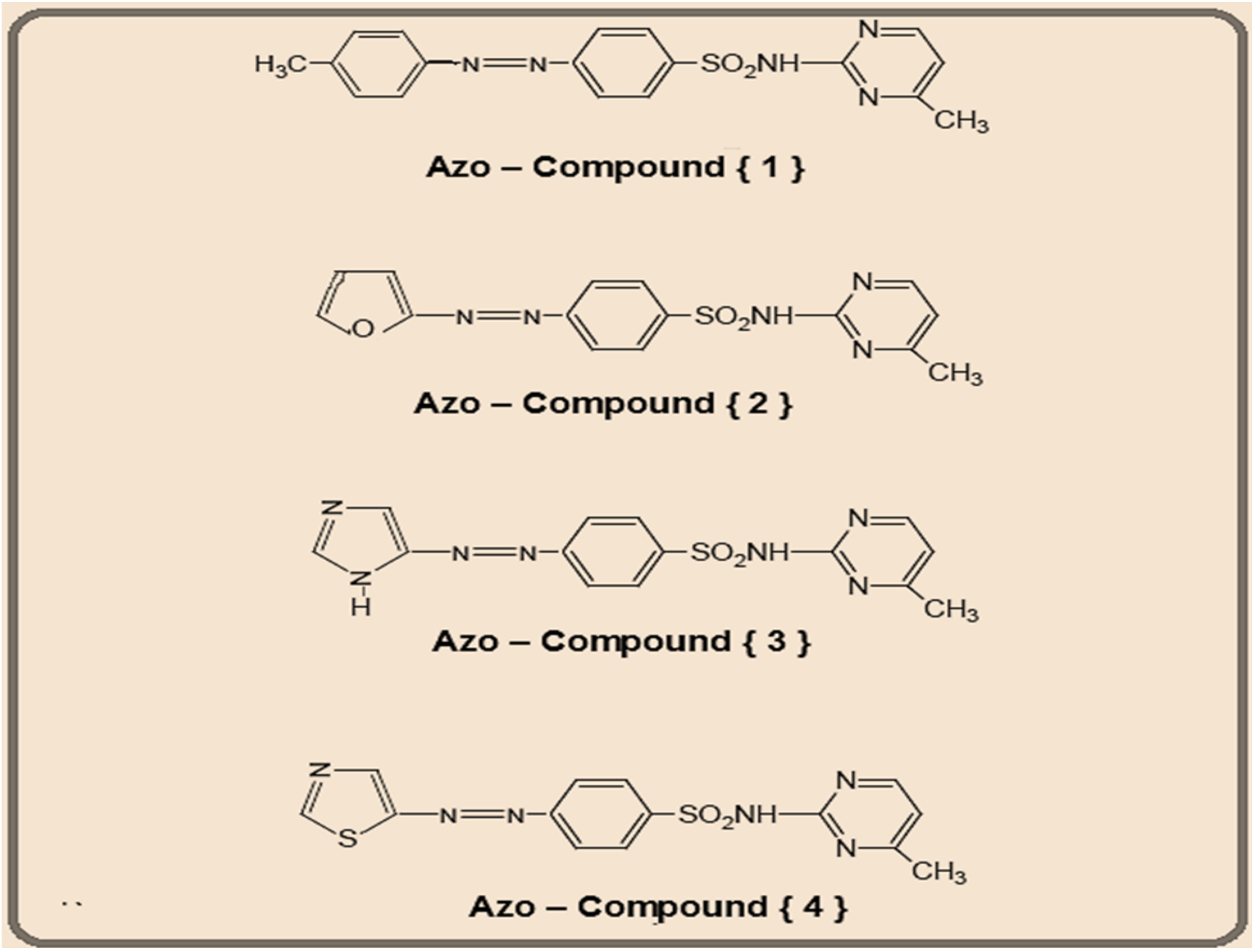
All chemicals and instrumentals carried out in lab, fungal studying carried out in Bio – lab in biological department., antifungal Studying carried out in department .

EXPERIMENTAL PROCEDURES

The sterilized medium (CzapekDoxAgar) was poured into petri dishes with depth 3-4 mm and mixed with the synthesized compounds [0.005 mole]. The mixture was incubated for 1h at R.T and the disk of fungi A. niger with diameter of 8 mm was placed on the solidified medium. The petri dishes were incubated at ((25 ºC for 24 hrs)) before testing the antifungal activity.

Synthesized Compounds In Schemes:

In our schemes , we prepared iminecompounds , but now we will study the biological activity for them in this work :



Scheme (1): Prepared Azo Compounds

RESULTS AND DISCUSSION

The formattedcompounds screened for fungal Activityagainst two types of fungi .

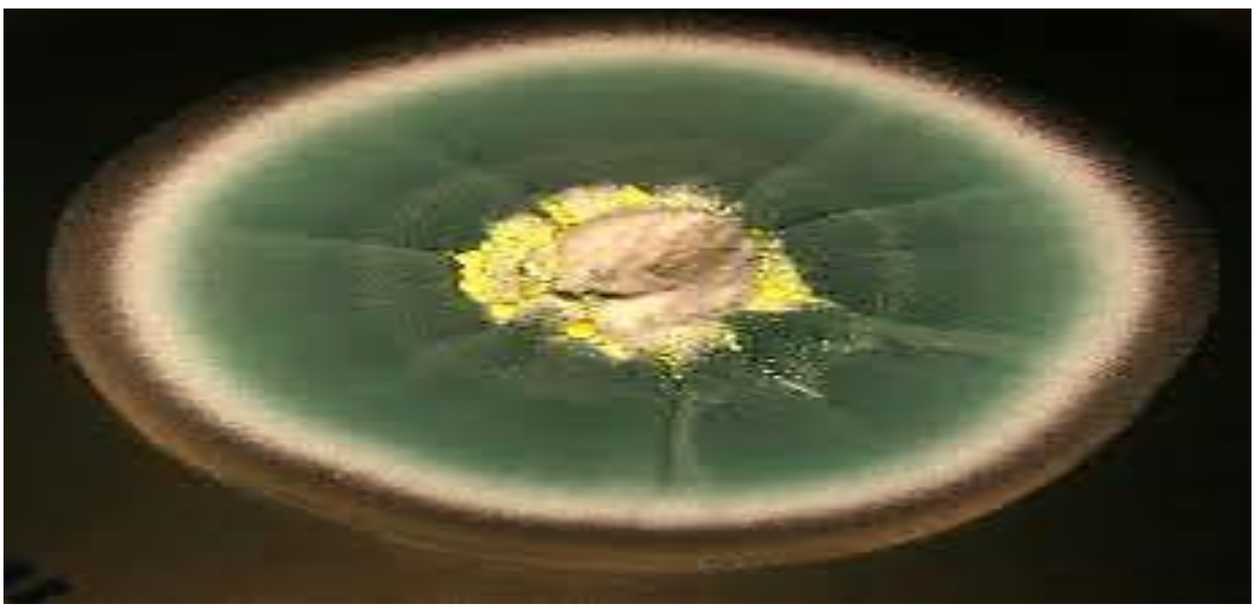
Fungal Tests[(61-70)] :

The antifungal activity against two species of fungi *(A. niger&P. crysogenum*)were abstracted in table (1)..

Aspergillusniger was among the earliest microorganisms used for the conversion of prochiral sulfides to chiral sulfoxides, it was proposed to account for the enantioselectivity of the oxidations of a range[93-102] of substituted phenyl and benzyl sulfides by this fungus

Picture (1) : Aspergillusniger

P. crysogenum **((**P. notatum)) is a species of fungus[103-119] in the genus Penicillium. It is common in temperate and subtropical regions and can be found on salted food products, but it is mostly found in indoor environments, especially in damp or water-damaged buildings.



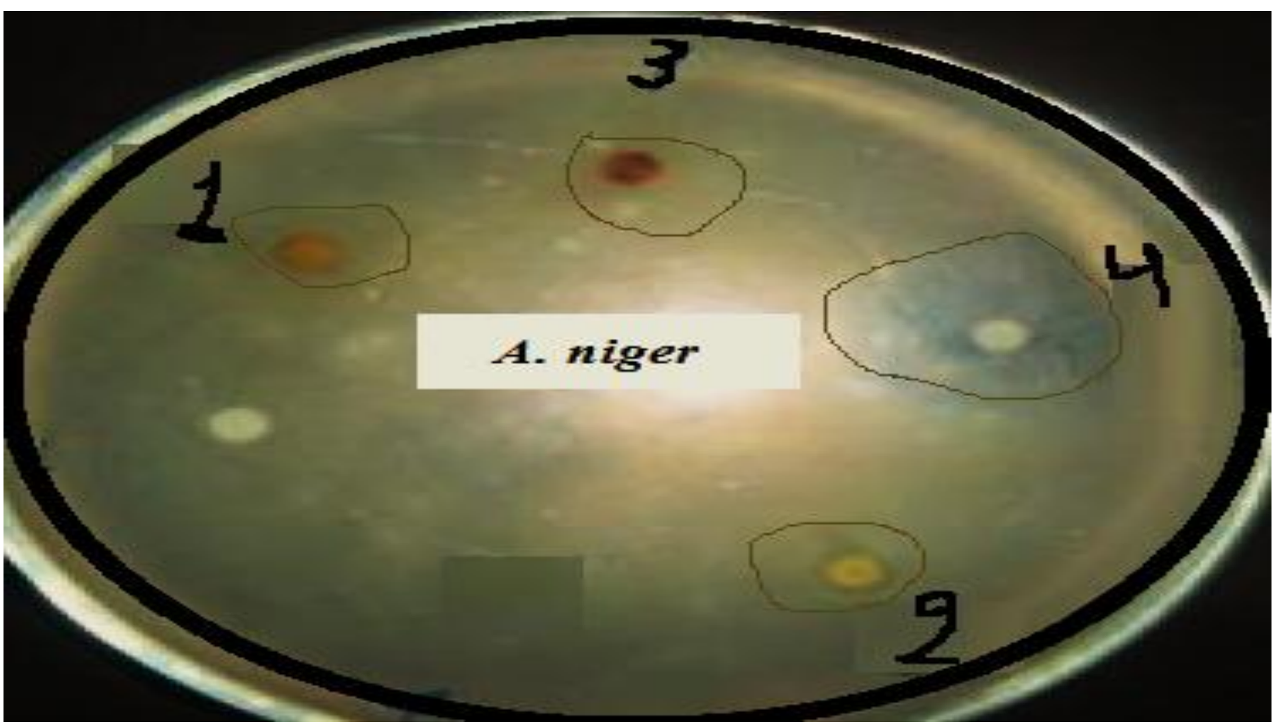
Picture (2): P. crysogenum

Table.1:Biological Activity (Inhibition Zone in (mm)) of Compounds

in Concentration (0.005 M).

Comp. No.	***P. crysogenum***	***A. niger***
[1]	6	4
[2]	6	6
[3]	8	8
[4]	10	8

The results gave the fungal Activityforazo-compounds (4, 3) is much higher than other azo-compounds in the inhibition of fungi, thiazole and imidazole cycle , which gave vital to the effectiveness of many of the fungi, and the following photos show the following:



Picture (3):Antifungal activity of azo – compounds on *A. niger* at concentration (0.005 mg/ml^{-1})

Picture (4): Antifungal activity of azo compounds on *P. crysogenum* at concentration (0.005 mg/ml^{-1})

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