

*Aspergillus*

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(No)

*Aspergillus*

*A . flavus*

<sup>3</sup> / 0.15 0.075 %59.25 %44.45

*A . fumigatus*

<sup>3</sup> / 0.15 %18.2 % 9.09

<sup>3</sup> / 0.075

*Aspergillus*

:

**Antifungal Activity of Nitroglycerin Against Some Species of *Aspergillus***

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**ABSTRACT**

The results of present study showed, that nitroglycerin as a nitric oxide donor (NO) have antifungal activity against some species of the opportunistic pathogenic fungus *Aspergillus* depending on species of fungus and the concentration of drug in growth media . *A . flavus*

was the most sensitive to nitroglycerin, it caused 44.45% and 59.25% inhibition of fungus growth when used in concentrations of 0.075 and 0.15 mg/ml in growth medium respectively. Whereas, *A. fumigatus* seems to be less sensitive to drug, the inhibition percentages was 9.09% and 18.2% at the same previous concentrations respectively. The concentration 0.15 mg/ml was more inhibitory on growth of test fungi in compared to 0.075 mg/ml.

**Keywords :** Nitroglycerin, Antifungal activity, *Aspergillus* .

[C<sub>3</sub>H<sub>5</sub>(NO<sub>3</sub>)<sub>3</sub>] (Glyceryl trinitrate) Nitroglycerin

.( Katzung *et al.*, 2009) (NO)

Nitrovasodilator

Angina pectoris

Analgesic

.( Richard *et al.*, 2009) Myocardial infarction

*Candida albicans*

NO

*Cryptococcus* (Gonzalez *et al.*, 2000) *Paracoccidioides brasiliensis* (Kim *et al.*, 2008)

( Vazquez-Torres *et al.*, 2008)

( Aguirre and Gibson , 2000) *neoformans*

Opportunistic pathogenic fungus

*Aspergillus*

.(Prescott *et al.*, 2005)

In vitro

( Lass-Florl *et al.*, 2010 )

NO

*Aspergillus*

:

: *Aspergillus*

*A. flavus* *A. fumigatus* *A. niger*

/ / /

.....

(In vitro) *Aspergillus*

(Cakir *et al.*, 2005) *Aspergillus*

Sabouraud – dextrose agar (SDA) .( )  
) Chloramphenicol ( Himedia Laboratories Pvt.Ltd-India)

% 0.5 ( Sabouraud – dextrose (Meletiadis *et al.*,2002)

<sup>3</sup> / 0.15 0.075

Glaxowellcome-United ) . (Kingdom

0.5  
<sup>3</sup> 60

<sup>3</sup> 55 18 9 <sup>3</sup> 5 9 4.5 <sup>3</sup> 5

<sup>3</sup> 100 Sabouraud – dextrose agar

<sup>3</sup> 20 9

Cork ° 28 5 porer

.( Radulovic *et al.*, 2007) 48 (Elektro - Mag- Turkey)

:

:(Negative control) -1

<sup>3</sup> 55 <sup>3</sup> 5 :( )

Chloramphenicol Sabouraud – dextrose agar  
Sabouraud – dextrose (Meletiadis *et al.*, 2002) %0.5

:(Positive control)

-2

(

) Nystatin

(

<sup>3</sup>

/

30)

Sabouraud – dextrose agar

(Agnol *et al.*, 2003)

.%0.5

Chloramphenicol

:

= %

(Cakir *et al.*, 2005 ) 100x

One way analysis of variance

SPSS

The least significant

. (2003 ) (P< 0.05)

*Aspergillus*

*A . flavus* *A . niger* *A . fumigatus*

.( 1 ) ( )

*A . flavus*

0.3±11 0.7±15

<sup>3</sup> / 0.15 0.075

)

0.2±27 *A . flavus*

5

.....

0.15 0.075

%59.25 % 44.45

(

.( 1 )

<sup>3</sup> /

*A. flavus*

*A. niger*

0.1± 20 0.4±22

<sup>3</sup> / 0.15 0.075

0.8±31 *A. niger*

%35.48 % 29.03

( )

.( 1 )

<sup>3</sup> / 0.15 0.075

*A. fumigatus*

0.5± 9 0.1±10

<sup>3</sup> / 0.15 0.075

0.1±11 *A. fumigatus*

0.075

%18.2 % 9.09

( )

.( 1 )

<sup>3</sup> / 0.15

*A. fumigatus*

% 54.54

% 77.41 % 77.78

*A. niger* *A. flavus*

*Aspergillus*

*Aspergillus* spp.

.( 1 )

*Aspergillus*

<sup>3</sup> / 0.15

*Aspergillus*

<sup>3</sup> / 0.075

.( 1 )

(Aguirre and Gibson, 2000; Gonzalez *et al.*, 2000; Kim *et al.* , 2008)

( Katzung *et al.*, 2009)

. ( Lass-Florl *et al.* , 2010 )

*Aspergillus*

0.075

<sup>3</sup> / 0.15

(1- ) ( )

*Aspergillus*

NO

Superoxide

NO

(Reactive nitrogen intermediate)

DNA

(ONOO-) Peroxynitrite

.(Nahrevanian and Amini , 2009)

(2000)

Shinyashiki

*Aspergillus*

Yeasts

Transcriptional activator Acel

Copper-binding thiols

Acel

NO

*Aspergillus*

<sup>3</sup> / 0.15

(1- )

<sup>3</sup> / 0.075

*Aspergillus*

.....

(Gonzalez *et al.*, 2000)

<sup>3</sup> / 0.15

*Aspergillus*

.(Gonzalez *et al.*, 2000)

(McElhaney-Feser *et al.*, 1998)

1-0.25

diazeniumdiolates

*Candida*

/

*Aspergillus*

*Aspergillus*

<sup>3</sup> / 0.15 0.075

. (Prescott *et al.*,2005) *Candida*

*Aspergillus*

Gonzalez *et al.*, ; Aguirre *et al.*, 2000) (*In vivo*)

( Kim *et al.*, 2008 ; 2000

*Aspergillus*

3 / 0.15 0.075 (NO) :1  
 . (Nystatin) (Aspergillus spp.)

		3 /					<i>Aspergillus spp.</i>
+ ( ) %		+ ( ) .%					
Nystatin 3 / 30		3 / 0.15		3 / 0.075			
(%)	( )	( )	(%)	( )	(%)	( )	
77.78	0.3±6 *	0.2±27	59.25	*0.3±11	44.45	*0.7±15	<i>Aspergillus flavus</i>
77.41	0.4±7 *	0.8±31	35.48	*0.1±20	29.03	*0.4±22	<i>Aspergillus niger</i>
54.54	0.6±5 *	0.1±11	18.2	0.5±9	9.09	0.1±10	<i>Aspergillus fumigatus</i>

) ± *Aspergillus spp.*

. (

*Aspergillus spp.*

.\*

. 0,05

( )

*Aspergillus spp.*

. 0,05



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.SPSS .(2003) .  
 .118-115 .

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