

( )

## Streptomyces

//

*Fusarium oxysporum*

*Streptomyces*

*f.sp.melonis*

*Streptomyces*

*Streptomyces* % / *Streptomyces* %

*Streptomyces* (p<0.01) %

*Streptomyces* % *Streptomyces* %

(p<0.01) % /

*Streptomyces*

*Fusarium oxysporum f.sp. melonis, Streptomyces:*

*Streptomyces*

*Fusarium oxysporum* Schlechtend: Fr. f.  
*sp. melonis* (Lach & Currence) W. C. Snyder & H.  
 N. Hansen

( )

*Streptomyces*

( )

( )

*Fusarium oxysporum f. sp. lycopersici*

*Pythium P. parasitica Phytophthora cinnamomi*

*Sclerotium rolfsii ultimum*

( )

(



Streptomyces

*Streptomyces*

*Streptomyces*

CGM

*Streptomyces*

( )

( )

CGM

°C

( )

( ) *Streptomyces*

*Streptomyces*

( )

(

PDA

( )

*Streptomyces*

( )

*Streptomyces*

*Streptomyces*

S3B S3NA S2VF

) *Streptomyces*

STL A15 A24 A20 S11A S11B S11D S11C

SE A13

*Streptomyces*

CGM

*Streptomyces*

( )

) *F. oxysporum* f. sp. *melonis*

( ) ( )

( )

( )

( )

*Streptomyces* + *F. oxysporum* f. sp. *melonis*

) *F. oxysporum* f. sp. *melonis*

( ) *Streptomyces*

(

( + )

x / x

( )

)

*Streptomyces* + *F.oxysporum* f. sp. *melonis*

|

( ) *Streptomyces*

(

ArcSin√x

( )

*Streptomyces*

MSTATC

√X + 0.5

( )

*Streptomyces*

*Streptomyces*

*Streptomyces*

Streptomyces

S11D  
A24

GNA  
K<sub>2</sub>S<sub>2</sub>O<sub>5</sub>

L ( )

A24,S<sub>2</sub>VF,A20,STL,S3B FOM

( ) CFU

( )

*Streptomyces*

*F.oxysporum* f.sp. *melonis*

( ) *Streptomyces*

GNA

CFU

*Streptomyces*

S11D	/ a	/ ab
S11A	/ ab	/ abc
STL	/ ab	/ a
A15	/ bc	/ cde
S11B	/ bcd	/ abcd
A20	/ bcd	/ bcd
S11C	/ cd	/ fgh
A13	/ cd	/ fgh
S3B	/ cd	/ efg
A24	/ cd	/ h
S2VF	/ d	/ gh
S3NA	/ d	/ h

*Streptomyces*

CFU

CGM

*Streptomyces*

*Streptomyces*

S11A, S11D

STL

$$= n \quad n=(a- b )/a \times 100$$

$$= b \quad = a$$

FOM

*Sreptomycetes*

/

p<0.01

( )

*Streptomyces*

*Streptomyces*

/

*Streptomyces*

*Streptomyces*

( )

*Streptomyces*

( )

	( )	( )	( )	( )
Streptomyces	/ a	/ a	a	a
Streptomyces+	a	/ a	b	/ b
FOM	/ a	/ a	/ ab	
	/ a	/ ab	/ ab	a
	b	b	c	c

=n : n=(a-b)/a×100

=b

=a

p<0.01

*Streptomyces*

( )

	( )	( )	( )	( )
Streptomyces	/ a	/ a	/ a	a
Streptomyces	/ a	/ bc	b	/ a
+ FOM	/ a	/ ab	/ ab	a
	/ a	/ ab	/ b	a
	b	b	c	c

(p<0.01)

*Streptomyces*

*Streptomyces*

FOM

*Streptomyces*

/

( )

*Streptomyces*

( )

( )

FOM

*Streptomyces*

S11D	/ a	/ a	/ ab	/ a
S11C	/ a	/ ab	/ ab	/ a
S11A	/ a	/ b	/ b	/ a
S11B	/ a	/ ab	/ a	/ a
SE	/ b	/ c	/ c	/ b
A15	/ b	/ d	/ d	/ b
S2VF	/ c	/ e	/ e	/ c
A20	/ c	/ d	/ ef	/ e
STL	/ d	/ f	/ ef	/ d
S3B	/ d	/ f	/ ef	/ c
A24	/ e	/ g	/ g	/ c

= n

n=(a- b )/a×100

= b

= a

p<0.01

( )

*Streptomyces*

... Streptomyces :

(CFU)

	<i>Streptomyces</i>	FOM	<i>Streptomyces</i>	FOM	<i>Streptomyces</i>	FOM
<i>Streptomyces</i> +FOM	( / ± / )×	( / ± / )×	( / ± / )×	( / ± / )×	( / ± / )×	( / ± / )×
<i>Streptomyces</i>	( / ± / )×		( / ± / )×		( / ± / )×	
		( / ± / )×		( / ± / )×		( / ± / )×

FOM= *F. oxysporum* f. sp. *Melonis*

= ±

(CFU)

	<i>Streptomyces</i>	FOM	<i>Streptomyces</i>	FOM	<i>Streptomyces</i>	FOM
<i>Streptomyces</i> +FOM	( / ± / )×	( / ± / )×	( / ± / )×	( / ± / )×	( / ± / )×	( ± / )×
<i>Streptomyces</i>	( / ± / )×		( / ± / )×			
		( / ± / )×		( / ± / )×		( / ± / )×

FOM= *F. oxysporum* f. sp. *Melonis*

= ±

FOM

*Streptomyces*

/ S3NA

*Streptomyces* (CFU)

FOM STL

( / ± / ) ×

/

/ ×

CFU/g

*Streptomyces*

FOM

*Streptomyces*

( )

*Streptomyces*

*Streptomyces*

FOM

( )

*Streptomyces*

*Streptomyces*

/

S11D

(Dual culture)

FOM

*Streptomyces* / *Streptomyces*

*Streptomyces*

*Streptomyces*

FOM

( )

/

S11D

*Streptomyces*

( )

(indole-3-acetic acid )

*Streptomyces*

FOM

*Streptomyces* sp

( )

( )

*Pythium*

*Streptomyces*

*Sclerotium rolfsii*

*Streptomyces*

*aphanidermatum*

( )

*Streptomyces*

( )

*Streptomyces*

*Sclerotinia minor*

$\beta$ -(1,3)-glucanase

*Streptomyces*

( )

*Streptomyces*

*Streptomyces* sp

*Streptomyces*

( )

( )

( )

( )

( )

*Streptomyces*

( )

( )

( )

*Streptomyces*

oat meal broth

*Streptomyces*

( )



Streptomyces :

*drechsleri*

*Streptomyces*

( )

Soil solarization

*Cucumis melo*

( )

*Streptomyces*

( )

*Phytophthora Marcophomina phaseoli*

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*Fusarium oxysporum* f.sp. *melois*

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