

()

Phytophthora sojae

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(/ / : // :)

Phytophthora

sojae

P. sojae

B43 B12 B80 B3

B64 B63 B51

% / B43 B3
 % B64 % / B80 % / B12 % / B51 B63
 B51 B43
 B64 B80 B12 B3 B63
 / / /
 B12 B3
 B64 B80 B51 B63 B43

B80 B12 B3

Pseudomonas spp. B64 B63 B51 B43 *Bacillus* spp.
 (B80 B12 B3) *Bacillus*
 NA PDA % *Phytophthora sojae*
P. sojae *Bacillus*
P. sojae *Pseudomonas*
Pseudomonas B63 B43
 HCN *Bacillus*
 B64 B80 B51 B43 B63 B12 B3

Pseudomonas Bacillus Phytophthora sojae :

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B. circulans

()

B. subtilis

()

()

P. ultimum

()

2,4-diacetyl phloroglucinol

Fusarium oxysporum f.sp.

()

radicis-lycopercisi

()

()

()

()

Bacillus subtilis A-13

Sclerotinia rolfsii

()

×

Bacillus

()

cereus UW85

()

()

B. subtilis *B. cereus*

()

Pseudomonas fluorescens

Pythium ultimum

()

Pythium ultimum *Rhizoctonia solani*

()

) *Phytophthora sojae*

B. subtilis

()

()

Eutypa lata

()

B. subtilis FR-2

()

NA PDA

King's B NA

NA

NA

King's B

NA

CMA

NA

Phytophthora sojae

×

(

× cfu)

× cfu

P. sojae

(= /

$\sqrt{x+1}$

()

)/]x1..

=[(

=

(/)

(B80 B64 B63 B51 B43 B12 B3)

()

()

Kings B

±

()

YDC

Bacillus

()

NA PDA

(NAG)

(B80 B12 B3) *Bacillus*

)

PDA NAG

CMA

CMA

()
() ()
CMA

/

CMA

NAG PDA

()
()

SAS

Pseudomonas

()

Bacillus

()

-)/
()]×
=[(

(B64 B63 B51 B43)

NAG PDA

CMA

×g

/

()

CMA
PDA

NAG

B63 B51 B43 *Pseudomonas*
B80 B12 B3 *Bacillus* B64

)

(

()

×

4-4-(methylen bis-(-N-N- dimethylanilin)

()

B64 B63 B51 B43
CMA

()

B3, B12, B43, B46, B51,)

B94 B46

(B63, B80

× cfu

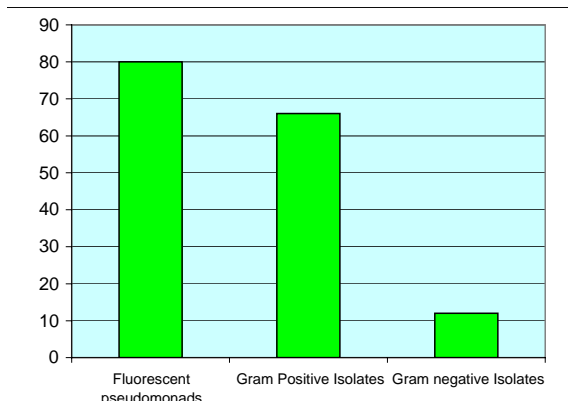
()

()

B64 B63 B51 B43

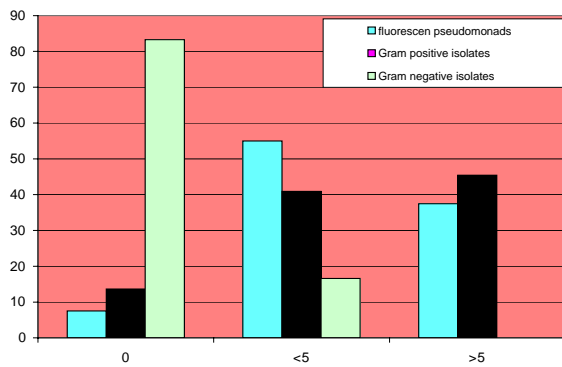
King's B

Geotrichum candidum
PDA



(B80 B64 B63 B51 B43 B12 B3)

	YMA
K ₂ HPO ₄	0.5g
MgSO ₄ · 7H ₂ O	0.1g
NaCl	0.2g
Manitol	10g
Yeast extract	0.5g
Agar	15g
Distilled Water	1 Lite



%

%

%

()

P. sojae

/

(B92 B86) *Bacillus*

/

(B12 B3) *Bacillus*

(B30 B27)

Bacillus(B3)

Bacillus(12)

(B80 B12 B3) *Bacillus*

(B64 B63 B51 B43) *Pseudomonas*

B43 B38) *Pseudomonas*

(B56 B51

Pseudomonas(B43) *Bacillus*(B3)

/ *Bacillus*(B12) /

/ (B63 B51) *Pseudomonas*

(B51 B43) *Pseudomonas*

Pseudomonas(B64) / *Bacillus*(B80)

B63) *Pseudomonas*

Bacillus(B80) (B78 B64

/ *Bacillus*(B3)

Pseudomonas / *Bacillus*(B12)

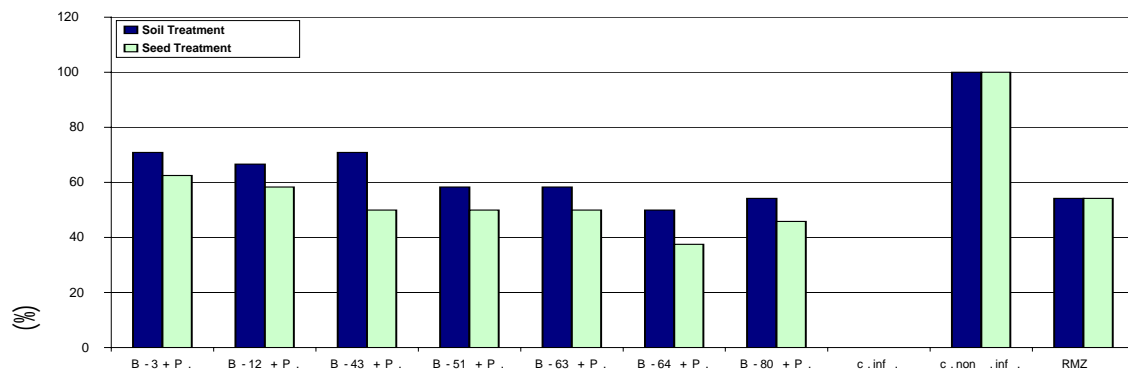
/ *Bacillus*(B80) (B63 B51 B43)

(B64 B63)

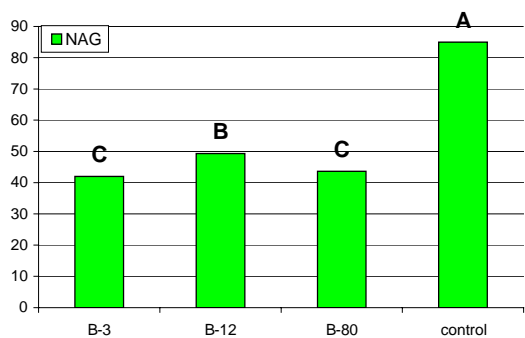
/ *Pseudomonas*(64)

Bacillus(B80)

()



B80 B3
P. sojae
 B12



(NAG) *Bacillus*

P. sojae

% *P. sojae*

% () % B3

B80 B12

B3 *P. sojae*

% / % / B12
 % / % / B80

B80 B3 %

% / % /

B12

% / B12 %

() *P. sojae*

B64 B63 B51 B43
 B80 B12 B3

YDC

B64 B63 B51 B43

Kings B
 B3, B12, B80

B51 B43
 B3

Pseudomonas sp.

Bacillus sp.

Bacillus spp.

NA
 B64 B63
 B80 B12

PDA

%

B80 B12 B3

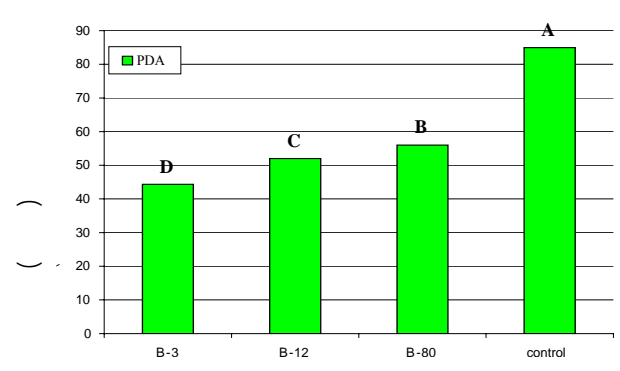
/ B3 %

/ B80

P. sojae

/ B12

()



(PDA)

Bacillus

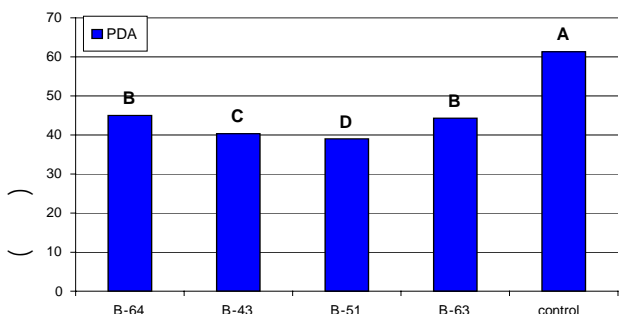
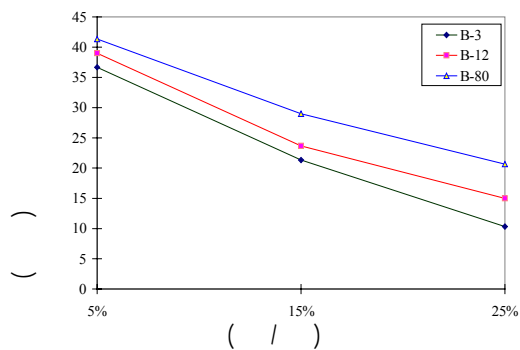
NAG

%

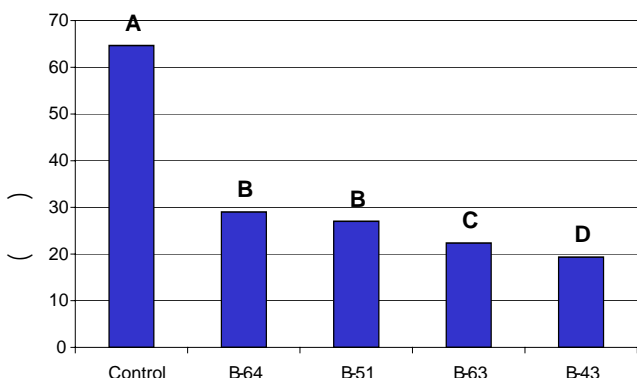
B80 B12 B3

%

B51 (B43)
Geotrichum candidum
 King's B B64
Geotrichum candidum



Pseudomonas sp.
 (PDA)



Pseudomonas sp.
 (PDA)

(B64 B63 B51 B43) *Pseudomonas*

HCN
 B80 B12 B3 *Bacillus* sp.

P. sojae

Pseudomonas spp.

PDA

%

B51

. % /

% /

.()

B64 B63

% /

NAG

%

B51 B64

P. sojae

% /

% /

% /

B63

B63 B51 B43) *Pseudomonas*

(B64

%

% /

B64

% /

B43

.()

Pseudomonas *Pseudomonas*(B63)

()

()

B80 B64 B63 B43 B12 B3

B94 B46

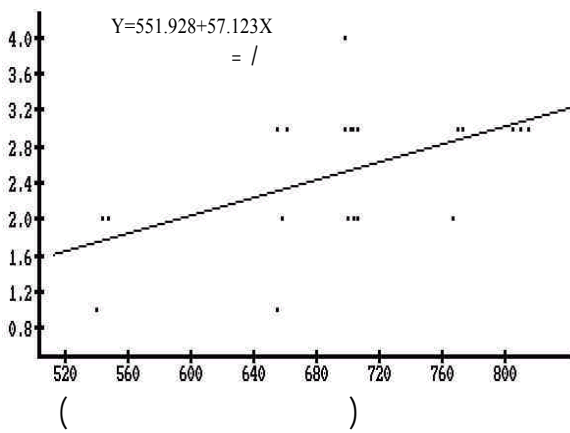
/
/
/ PDA
/ NAG
/

/	/ x	/ x	B3
/	/ x	/ x	B12
/	/ x	/ x	B63
	/ x	x	B43
/	/ x	/ x	B51
/	/ x	/ x	B80
/	/ x	/ x	B64
/	/ x	/ x	B94
/	/ x	/ x	B46

() $Y=551.928+57.123X$

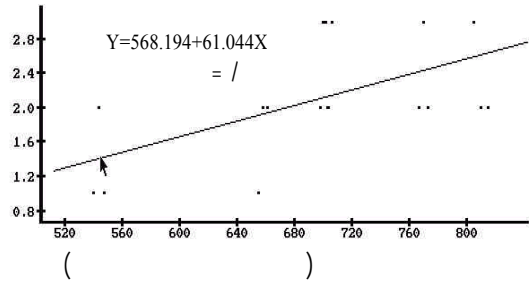
NAG

$Y=26.477+2.444X$



$Y=4.49+1.39X$

/



()

()

() (/)

()

Y=568.194+61.044X

NAG

(/)

Y=40.419-3.711X

PDA

P. sojae

P. sojae

NAG

()

%

P. sojae

NA

Bacillus

PDA

CMA

()

...

() .()

P. sojae

% NA . *Rhizoctonia solani* *Bacillus*

PDA) (

Pseudomonas () *Bacillus*

() () () .()

Pseudomonas *P. sojae* *Bacillus*

P. sojae *Pseudomonas* *P. sojae*

CMA *Bacillus*

()

Pseudomonas fluorescens pf-5

() () ()

() () ()

R. solani *P. ultimum* () ()

() *Bacillus*

B63 B43 *Pseudomonas* *Bacillus* ()

King'sB

G. candidum ()

B64 B51

Pseudomonas spp.

() *P. sojae*

() NAG PDA

P. fluorescens 3553
P. ultimum

()

()

()

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