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*Tilletia laevis* L10

*Pseudomonas fluorescens* bio I B9, *P. fluorescens* bioIII D22, *P. putida*  
*P. fluorescens* bioV E2 , bioA E16 *P. fluorescens* bioV D23,  
*P. fluorescens* bio I B9 *P. fluorescens* bioIII D22

*P. fluorescens* bioV E2 *P. putida* bioA E16  
*P. fluorescens* bioIII D22

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(Common Bunt)

( )

P1 178383

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( )  
*Pseudomonas chlororaphis* MA342  
*Tilletia tritici* 10<sup>9</sup> CFU/ml  
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 (  
 ( ) ( )  
 ( )

(Serial dilution)  
*Pseudomonas Bacillus*  
*Rhizopus Mucor*  
*T. tritici*  
 ( )  
 (King's B) ( )  
*P. chlororaphis* MA342  
*T. laevis*

*Tilletia laevis*  
 ( )  
 - -  
 (PDA)  
*Tilletia laevis*  
*Tilletia laevis* L<sub>10</sub>  
 ( )  
 ( )  
 ± ) (WA)  
 ( ±

± )

( ) ( )

( )

( )

( )

(WA)

( )

% )

( )

PDA

( % ) ( )

( % )

WA

PDA

( )

WA

WA

PDA

( )

(PDB)

±

( )

(NA)

NA

±

( )

(  
(.)

Skimmed milk)

±

( )

King's B

±

*Geotrichum candidum*

( )

PDA

*Pseudomonas.sp* B29  
( )

MSTATC software ) MSTATC

*Pseudomonas fluorescens*

(Version, 2.1

bioIII C21

*Pseudomonas.sp* B29 *Pseudomonas.sp*.D7

*Pseudomonas fluorescens*

x )  $y = A \sin \sqrt{x}$

*Pseudomonas.putida* bio AE16 bioIII D22

*Pseudomonas.sp*.D7

( ) (

*P.fluorescens* bioIII D22

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*Pseudomonas.sp* F13

*fluorescens*

*Pseudomonas*

*Pseudomonas.sp*

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*candidum*

*Pseudomonas fluorescens* bioI B9

*Geotrichum*

*P.fluorescens* bioV *Pseudomonas.sp* D4

*Pseudomonas.sp* D11 C 15

( )

*Geotrichum candidum*

( )

*Pseudomonas fluorescens* bioI B9

*Pseudomonas*

*T.laevis*

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(	)	(	)
a		a	
i		a	<i>Pseudomonas.sp</i> D4
c		a	<i>P.fluorescens bioIII</i> C15
/ c		a	<i>Pseudomonas.sp</i> D11
/ h		b	<i>Pseudomonas.sp</i> D7
/ g		/ b	<i>Pseudomonas.sp</i> E10
f		bc	<i>Pseudomonas.sp</i> F13
c		/ bc	<i>Pseudomonas.sp</i> B14
/ bc		bc	<i>Pseudomonas.sp</i> F25
de		/ cd	<i>P.fluorescens bioIII</i> F8
/ b		/ d	<i>Pseudomonas.sp</i> B29
/ d		/ e	<i>P.fluorescens bioIII</i> C21
/ ef		/ ef	<i>P.fluorescens bioV</i> D23
/ ef		ef	<i>P.fluorescens bioV</i> E2
c		/ f	<i>P.putida bioA</i> E16
/ j		f	<i>P.fluorescens bioIII</i> D22
/ h		/ f	<i>P.fluorescens bioIII</i> E6
ij		/ g	<i>P.fluorescens bioI</i> B9

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(p< / )

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*Pseudomonas*

*T.laavis*

( )	
a	a
a	/ b
a	/ bc
a	/ b
/ cd	/ bcd
a	/ bc
a	/ b
a	g
/ bc	e
a	/ b
/ bcd	de
a	/ cde
a	ef
/ bc	/ b
a	/ bc
a	/ bcd
/ d	cde
/ bc	/ fg

a  
a  
a  
a  
/ b  
bc  
/ bc  
cd  
cde  
def  
/ defg  
/ efg  
/ fg  
/ fg  
/ gh  
ghi  
/ hi  
/ i

*Pseudomonas.spF13*  
*Pseudomonas.spB29*  
*Pseudomonas.spD11*  
*P.fluorescens bioIII-C15*  
*Pseudomonas.spB14*  
*Pseudomonas.spD7*  
*P.putidas bioA E16*  
*P.fluorescens bioIII-E6*  
*Pseudomonas.spD4*  
*P.fluorescens bioV-D23*  
*P.fluorescens bioIII-F8*  
*P.fluorescens bioV-E2*  
*Pseudomonas.spF25*  
*Pseudomonas.spE10*  
*P.fluorescens bioI-B9*  
*P.fluorescens bioIII-C21*  
*P.fluorescens bioIII-D22*

(p<

<i>Pseudomonas</i>	( )	(+)	-	
ppm	ppm	ppm	ppm	ppm
				<i>P.fluorescens bioV.E2</i>
			+	<i>Pseudomonas.sp D4</i>
			+	<i>P.fluorescens bioIII C21</i>
				<i>P.fluorescens bioIII E6</i>
				<i>Pseudomonas.spD7</i>
+	+	+	+	<i>P.fluorescens bioIII F8</i>
				<i>P.fluorescens bioI B9</i>
				<i>Pseudomonas.spE10</i>
				<i>Pseudomonas.spD11</i>
+	+	+	+	<i>Pseudomonas.spF13</i>
				<i>Pseudomonas.spB14</i>
				<i>P.fluorescens bioIII C15</i>
				<i>P.putida bioA E16</i>
				<i>P.fluorescens bioIII D22</i>
				<i>P.fluorescens bioV D23</i>
				<i>Pseudomonas.spF25</i>
				<i>Pseudomonas.spB29</i>

(+) *Pseudomonas*  
*Geotichum candidum* ( )

( )				
+	+	+	+	<i>P.fluorescens</i> bioV E2
+	+	+	+	<i>Pseudomonas</i> .spD4
				<i>P.fluorescens</i> bioIII E6
				<i>Pseudomonas</i> .spD7
				<i>P.fluorescens</i> bioIII F8
				<i>P.fluorescens</i> bioI B9
+	+	+	+	<i>Pseudomonas</i> .spE10
				<i>Pseudomonas</i> .sp D11
+	+	+	+	<i>Pseudomonas</i> .spF13
+	+	+	+	<i>Pseudomonas</i> .spB14
				<i>P.fluorescens</i> bioIII C15
+	+	+	+	<i>P.puyida</i> bioA-E16
+	+	+	+	<i>P.fluorescens</i> bioIII C21
				<i>P.fluorescens</i> bioIII D22
+	+	+		<i>P.fluorescens</i> bioV D23
+	+	+	+	<i>Pseudomonas</i> .spF25
+	+	+	+	<i>Pseudomonas</i> .spB29

*T.laevis*

*Pseudomonas*

( + )			
/ def	<i>P.E6</i>	a	<i>P.B29</i>
/ efg	+ <i>P.E10</i>	a	<i>P.E2</i>
/ fgh	+ <i>P.E2</i>	/ abc	+
/ fghi	+ <i>P.F13</i>	/ abc	<i>P.E10</i>
/ fghi	+ <i>P.C4</i>	a	<i>P.D7</i>
/ fghi	+ <i>P.B29</i>	a	<i>P.D23</i>
fghij	+ <i>P.D7</i>	a	<i>P.C4</i>
fghij	+ <i>P.B14</i>	a	<i>P.F13</i>
fghij	+ <i>P.F8</i>	a	<i>P.D11</i>
fghij	+ <i>P.D11</i>	a	<i>P.E16</i>
fghij	+ <i>P.C15</i>	/ bcde	<i>P.C21</i>
/ fghij	+ <i>P.F25</i>	/ bcd	<i>P.D22</i>
/ ghijk	+ <i>P.E16</i>	/ bcd	<i>P.B14</i>
/ hijk	+ <i>P.B9</i>	/ bcd	<i>P.F25</i>
/ ghijk	+ <i>P.E6</i>	/ bcde	<i>P.F8</i>
ijk	+ <i>P.D23</i>	/ bcde	<i>P.B9</i>
jk	+ <i>P.C21</i>	/ def	<i>P.C15</i>
/ k	+ <i>P.D22</i>	/ cde	

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(p < / )

E16 = *P.putida* bio A ; D22 = *P.fluorescens* bio III ; B9 = *P.fluorescens* bio I  
D23 = *P.fluorescens* bio V ; C21 = *P.fluorescens* bio III ; E2 = *P.fluorescens* bio V  
F8 = *P.fluorescens* bio III ; E6 = *P.fluorescens* bio III ; C15 = *P.fluorescens* bio III

*Pseudomonas*. sp

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*Pseudomonas*

2,4-diacetyl

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*phloroglueinol*

*P.fluorescens*

bioIII D22

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( )

*Pseudomonas*

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*Pseudomonas*

*Thielaviopsis basicola*

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2-79

*P.fluorescens*

King's B

*Tilletia laevis*

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*Geotrichum candidum*

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*Pseudomonas fluorescens* bioI B9

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