

تقويم كفاءة النتروجين والنحاس في مكافحة اللفحة البكتيرية على البصل المتسبب

عن *Xanthomonas* sp.

<i>Allium</i>	<i>Xanthomonas</i>	<i>cepa</i> L.
CuSO ₄ .5H ₂ O	(/ 100 80 60 0)	
Yeast extract – dextrose – CaCO ₃	) (/ 20 10 0)	
/ 100	(<i>Xanthomonas</i>	(YDC)
	/ 10	
/ 10	/ 100	<i>Xanthomonas</i>
		<i>Xanthomonas</i>

Abstract

This study was conducted to isolate and identify *Xanthomonas* bacteria which causing blight of bacterial diseases on *Allium cepa* L. plant, and resistance this bacteria by using nitrogen and copper fertilizer. *Xanthomonas* bacteria was identified according to microscopic and biochemical characteristics. Field experiment was carried out by planting white onion bulb; four levels of nitrogen fertilizers were applied to soil (0, 60, 80 and 100 kg N/ha) and three levels of copper sulfate (0, 10 and 20 mg Cu/L.) by foliar application. Two treatments of *Xanthomonas* inoculum were used (YDC medium without bacteria, *Xanthomonas* inoculum).

Nitrogen level of 100 kg N/ha gave the highest average of the most growth characteristics, plant height, leaf length, number of leaves and total yield. The copper level of 10 mg Cu/L. gave the highest average of shoot and yield characteristics. Bacterial inoculum affected decreasing of growth and yield as compared with plant without inoculation. The treatment of 100 kg N/ha with 10 mg Cu/L. and without inoculation with *Xanthomonas* gave the highest value of the most of growth and yield characteristics.

(*Allium cepa* L.) Onion

.(1997 Randle) Amaryllidaceae

/ 47.461	<i>Allium cepa</i> L.
/ 24.23	
(2003 FAO)	/ 19.89
) 1997	/ 10.67

.(1998

Bacterial Blight Disease
Xanthomonas
 %30
 (Dowson 1943).

(Schwartz 2003).

(1999).

150
Xanthomonas
 10-1 10 10
 0.1 10^{-6} 10^{-1}
 (YDC) Yeast extract – dextrose – CaCO_3
 72 ° 27

Plate count method
 10^{-6} - 10^{-1}
 1 (8.5)
 25 .
 ° 45 YDC
 ° 27
 × (CFU/ml) /
 (1983)

0) (%46) 10 (/ 100 80 60

Triple super phosphate 21

/ 25 / 48 (%21-19) (1985)

30

$\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$

Singh) 50 6-4 (1997 Gad 1983
.(/ 20 10 0)

15

()

Xanthomonas

(*Xanthomonas*)

YDC

Xanthomonas

"

150

() ()

() /

Randomized Complete Block Design (RCBD)

.(2000) %5 L.S.D.

(2)

/ 100

150 67.1

150 60.0 / 0

() (1999).

/ 10

150 65.0
150 63.3 / 0

Cytochromoxidase Laccase Phenolase

Xanthomonas (1)

Xanthomonas
150 63.4
65.5 *Xanthomonas*
Xanthomonas 150

Xanthomonas
/ 10 / 80)
68.9 150 (*Xanthomonas*
/ 0 / 0)
150 56.1 (*Xanthomonas*
.*Xanthomonas*
Xanthomonas (1)
150 ()

	<i>Xanthomonas</i>				<i>Xanthomonas</i>			<i>/</i>
	<i>/</i>				<i>/</i>			
	20	10	0		20	10	0	
60.0	61.3	61.5	56.1	62.0	62.5	65.6	57.9	0
63.6	62.7	64.8	63.5	66.1	65.4	66.5	66.6	60
63.1	64.9	62.4	62.1	66.7	68.9	63.7	67.5	80
66.9	66.9	67.6	66.2	67.3	67.0	68.4	66.6	100
63.4	63.9	64.0	61.9	65.5	65.9	66.0	64.6	

150 () (2)

	/			/
	20	10	0	
60.8	61.9	63.5	57.0	0
64.8	64.0	65.5	65.0	60
64.9	66.9	63.0	64.8	80
67.1	66.9	68.0	66.4	100
64.4	64.9	65.0	63.3	

1.4878 = L.S.D. 0.05

1.0521 = *Xanthomonas* L.S.D. 0.05 1.2885 = L.S.D. 0.05

3.6391 = *Xanthomonas* × × L.S.D. 0.05

-

150 (4)

/ 100 .
150 47.72
42.76 (/ 0)

Kumar) (1999)
(2005 1998

/ 20
(/ 0) 150 46.82
. 44.54

Xanthomonas (3)

150 44.97 *Xanthomonas*

46.46

Xanthomonas

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Xanthomonas

20 / 80

150

Xanthomonas

/ 20 / 0)

48.80

. 150

41.23

(*Xanthomonas*

()

Xanthomonas

(4)

150

	<i>Xanthomonas</i>				<i>Xanthomonas</i>			/
	/				/			
	20	10	0		20	10	0	
41.30	41.23	41.43	41.26	44.23	44.83	44.50	43.36	0
44.84	46.43	45.66	42.43	46.70	47.96	43.83	48.30	60
46.22	46.80	47.40	44.46	47.06	48.80	48.70	43.70	80
47.56	49.86	47.86	44.96	47.88	48.70	47.03	47.93	100
44.97	46.08	45.58	43.27	46.46	47.57	46.01	45.82	

150

()

(5)

	/			/
	20	10	0	
42.76	43.03	42.96	42.31	0
45.76	47.19	44.74	45.36	60
46.64	47.80	48.05	44.08	80
47.72	49.28	47.44	46.44	100
45.72	46.62	45.79	44.54	

1.8294 = L.S.D. 0.05

1.5843 = L.S.D. 0.05

1.2936 = *Xanthomonas* L.S.D. 0.05

5.248 = *Xanthomonas* × × L.S.D. 0.05

/ -

. /

(6)

11.76 /

/ 100

/ 0

150 /

150 / 11.05

Leaf primordia

1992 Srinivas Niak)

(1957 Njoku)

.(2005

. /

/ 20

150 11.73 /

150 11.27 (/ 0)

.(1950 , Arnon)

plastocyanin

(1975 Blashop 1966 Boardman)

(stability)

.

Xanthomonas (5)

150 11.23 *Xanthomonas*

Xanthomonas

Xanthomonas 150 11.65

.

100 / *Xanthomonas*

/ *Xanthomonas* / 20 /

. 150 / 12.73

Xanthomonas / 0 0

. / 10.46

Xanthomonas (6)

150

	<i>Xanthomonas</i>				<i>Xanthomonas</i>			/
	/				/			
	20	10	0		20	10	0	
0	11.06	10.53	10.46	11.43	11.70	11.46	11.13	0
0	11.13	11.10	10.93	11.58	12.10	11.33	11.33	60
0	11.63	11.53	11.46	11.77	12.00	11.55	11.76	80
0	11.56	11.60	11.90	11.85	12.73	11.60	11.23	100
0	11.34	11.19	11.18	11.65	12.13	11.48	11.36	

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150

(7)

	/			/
	20	10	0	
11.05	11.38	10.99	10.79	0
11.31	11.61	11.21	11.13	60
11.65	11.81	11.54	11.61	80
11.76	12.14	11.60	11.56	100
11.44	11.73	11.33	11.27	

0.2956 = L.S.D. 0.05 0.3413 = L.S.D. 0.05

0.2414 = *Xanthomonas* L.S.D. 0.05

0.8349 = *Xanthomonas* × × L.S.D. 0.05

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(8)

/ 100 . 150

150

150

3.44

3.14

) (1991)

.(2005 1979

/ 10 150

. 3.31

. 150 3.25 (/ 0)

(1991)

.

(7)

Xanthomonas

150 3.23 *Xanthomonas*

Xanthomonas

.

(7)

150

Xanthomonas

/ 10 / 100

150 3.79 *Xanthomonas*

/ 0 / 0

. 150 3.11 *Xanthomonas*

Xanthomonas

(8)

150

()

	<i>Xanthomonas</i>				<i>Xanthomonas</i>			/
	/				/			
	20	10	0		20	10	0	
3.14	3.13	3.18	3.11	3.15	3.21	3.14	3.12	0
3.22	3.26	3.19	3.22	3.26	3.28	3.23	3.29	60
3.22	3.22	3.28	3.18	3.37	3.35	3.37	3.41	80
3.32	3.35	3.34	3.28	3.56	3.48	3.79	3.42	100
3.23	3.24	3.20	3.19	3.33	3.33	2.39	3.29	

150

()

(9)

	/			/
	20	10	0	
3.14	3.17	3.16	3.11	0
3.24	3.27	3.21	3.25	60
3.29	3.28	3.32	3.29	80
3.44	3.41	3.56	3.35	100
3.28	3.28	3.31	3.25	

0.1155 = L.S.D. 0.05

0.1 = L.S.D. 0.05

0.0817 = *Xanthomonas* L.S.D. 0.05

0.2825 = *Xanthomonas* × × L.S.D. 0.05

-

(12)

/ 80 100

100 / 60

/ 20.323 /

/ 16.344

.

.(2005)

(1979)

(12)

/ 10

/ 17.271

/ 18.945

.

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Xanthomonas (11)

/ 17.201

/ 19.189

(10)

0 / 100

Xanthomonas

Xanthomonas /

0 / 0

/ 21.941

. / 13.336

Xanthomonas

/

Xanthomonas

(10)

(/)

	<i>Xanthomonas</i>				<i>Xanthomonas</i>			<i>/</i>
	<i>/</i>				<i>/</i>			
	20	10	0		20	10	0	
15.233	16.915	15.448	13.336	17.455	17.677	18.440	16.250	0
16.008	15.233	17.834	14.959	18.231	18.381	19.203	17.111	60
18.375	18.241	19.027	17.677	19.607	18.851	21.158	18.812	80
19.189	19.848	19.633	18.088	21.458	21.608	20.826	21.941	100
17.201	17.604	17.985	16.015	19.187	19.129	19.906	18.528	

(/)

(11)

	/			/
	20	10	0	
16.34	17.296	16.944	14.793	0
17.120	16.807	18.518	16.035	60
18.990	18.636	20.092	18.244	80
20.323	20.728	20.229	20.014	100
18.194	18.366	18.945	17.271	

1.2645 = L.S.D. 0.05

1.0951 = L.S.D. 0.05

0.8941 = *Xanthomonas* L.S.D. 0.05

3.0929 = *Xanthomonas* × × L.S.D. 0.05

.1983 .

.2000 .

.2005 .

Allium cepa L.

Glutathione

.1985 .

.1989 .

.109-101 : (5)1 . -

. () .1999 .

.1991 .

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