

6/7/2018
Bioassay

: Fumigation toxicity ✓

Target Pest

: Tribolium castaneum adult ✓

Treatment source

: Callistemon citrinus essential oil

Concentrations

: 40µl/L, 80µl/L, 120µl/L, 160µl/L, 200µl/L

Study period

: 3h, 6h, 9h, 12h, 24h

Replication

: 5

No. of Insect/Replicate : 10.

Concentrations & Replicates	Insect Mortality Exposure Time				
	3h	6h	9h	12h	24h
40µl/L R ₁	0	1	2	4	5
R ₂	0	2	4	4	5
R ₃	0	1	3	3	5
R ₄	0	1	3	3	5
R ₅	0	1	3	4	6

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Confirmed.....


3/7/2018.

800h/L

	3h	6h	9h	12h	24h
R ₁	0	1	5	8	9
R ₂	0	2	6	6	8
R ₃	0	2	6	7	8
R ₄	0	1	6	6	8
R ₅	0	2	6	7	8

1200h/L

R ₁	0	3	8	8	9
R ₂	0	4	7	8	9
R ₃	0	2	8	8	9
R ₄	0	3	6	9	10
R ₅	0	3	7	8	9

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		3h	6h	9h	12h	24h
160µL/L	R ₁	2	5	10	10	10
	R ₂	1	4	10	10	10
	R ₃	1	6	10	10	10
	R ₄	0	4	10	10	10
	R ₅	0	5	10	10	10
200µL/L	R ₁	2	7	10	10	10
	R ₂	3	7	10	10	10
	R ₃	2	6	10	10	10
	R ₄	2	6	10	10	10
	R ₅	2	6	10	10	10
Control	R ₁	0	0	0	0	1
	R ₂	0	0	0	0	0
	R ₃	0	0	0	0	0
	R ₄	0	0	0	0	0
	R ₅	0	0	0	0	1

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18/7/18

Bioassay

Fumigation Toxicity

Target Pest

Tribolium castaneum Larvae ✓

Treatment source

Callistemon citrinus essential oil.

Concentrations

40µl/L, 80µl/L, 120µl/L, 160µl/L, 200µl/L, 240µl/L, 280µl/L, 320µl/L.

Study period

3h, 6h, 9h, 12h, 24h, 36h, 48h ✓

Replication

5 ✓

No. of insect/replicate

: 10.

Concentration & Replication	Larval mortality						
	Exposure time						
	3h	6h	9h	12h	24h	36h	48h
R ₁	0	0	0	0	1	2	2
R ₂	0	0	1	1	1	1	3
R ₃	0	0	0	1	1	1	2
R ₄	0	0	0	0	0	1	2
R ₅	0	0	0	0	1	2	2

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21/7/18


	3h	6h	9h	12h	24h	36h	48h
80ml/L	R ₁	0	0	0	1	2	4
	R ₂	0	0	1	2	3	3
	R ₃	0	0	1	1	2	4
	R ₄	0	0	0	1	2	4
	R ₅	0	0	0	2	3	3
120ml/L	R ₁	0	0	0	3	3	5
	R ₂	0	0	1	2	3	4
	R ₃	0	0	1	2	2	5
	R ₄	0	0	1	1	2	5
	R ₅	0	0	0	1	2	4
160ml/L	R ₁	0	1	2	2	3	5
	R ₂	0	0	1	2	2	5
	R ₃	0	1	1	2	3	6
	R ₄	0	1	1	2	3	5
	R ₅	0	0	0	3	3	6
200ml/L	R ₁	0	1	2	2	4	6
	R ₂	0	1	1	2	3	5
	R ₃	0	1	1	3	3	5
	R ₄	0	1	1	3	3	6
	R ₅	0	1	2	3	3	7

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	3h	6h	9h	12h	24h	36h	48h
240h/L	R ₁	0	2	2	4	4	8
	R ₂	0	1	1	3	4	7
	R ₃	0	1	2	3	3	6
	R ₄	0	1	1	2	4	7
	R ₅	0	1	2	3	3	8
280h/L	R ₁	0	2	2	4	4	9
	R ₂	0	1	1	3	4	8
	R ₃	0	2	2	4	4	8
	R ₄	0	1	2	4	5	8
	R ₅	0	1	3	3	4	8
320h/L	R ₁	0	2	3	4	5	7
	R ₂	0	1	2	4	6	9
	R ₃	0	3	3	5	5	6
	R ₄	0	1	3	4	4	6
	R ₅	0	2	2	4	5	7
Control	R ₁	0	0	0	0	0	1
	R ₂	0	0	0	0	1	1
	R ₃	0	0	0	0	0	0
	R ₄	0	0	0	0	0	0
	R ₅	0	0	0	0	0	1

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M.P. M.


21/7/2018.

24/7/18

Bioassay : Repellent activity (Y-tube) ✓

Target Pest : Tribolium castaneum adult ✓

Treatment source : Callistemon citrinus essential oil

Concentrations : 5 μ l, 10 μ l, 15 μ l, 20 μ l ✓

Study Period : 24h.

Replication : 3

No. of insect/Replicate : 50

Exposure time 24h	Concentrations	Adult Repellency					
		Replication					
		R ₁		R ₂		R ₃	
		T	C	T	C	T	C
	5 μ l	16	33	17	32	18	32
	10 μ l	9	38	8	40	8	39
	15 μ l	3	45	2	47	3	47
	20 μ l	0	45	0	47	0	49

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M. R. M.

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Bioassay

10: Repellent activity (chole-based method)

Target pest

10: Tribolium castaneum Larvae

Treatment source

: Callistemon Citrinus essential oil

Concentrations

: 50µl, 10µl, 15µl, 20µl ✓

Study period

: 2h, 4h, 6h, 12h, 24h

Replication

: 5

No. of insect/replicate

: 25

Concentration & Replicate	Larval Repellency									
	Exposure Time									
	2h		4h		6h		12h		24h	
	T	C	T	C	T	C	T	C	T	C
5µl R ₁	9	16	9	16	9	16	9	16	8	16
R ₂	9	16	9	16	9	16	8	16	7	16
R ₃	8	14	8	14	7	14	7	14	7	14
R ₄	9	15	9	15	9	15	9	15	9	15
R ₅	10	13	10	13	11	14	11	14	9	14

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		2h		4h		6h		12h		24h	
		T	C	T	C	T	C	T	C	T	C
10hd	R	7	18	7	18	7	18	7	18	6	19
	R ₂	7	18	7	18	7	18	7	18	6	19
	R ₃	7	18	7	18	7	18	7	18	7	18
	R ₄	7	16	7	16	7	16	7	18	7	18
	R ₅	8	16	8	17	8	17	8	17	8	17
15hd	R	5	20	5	20	5	20	4	21	4	21
	R ₂	5	20	5	20	5	20	4	21	4	21
	R ₃	5	19	5	20	5	20	5	20	5	20
	R ₄	4	19	4	19	4	21	5	20	4	20
	R ₅	4	18	4	18	4	21	5	20	5	20
20hd	R	3	18	3	22	2	22	2	23	0	23
	R ₂	3	18	3	22	2	22	2	22	2	22
	R ₃	4	19	4	21	3	21	3	22	0	22
	R ₄	3	18	3	22	2	22	2	23	1	23
	R ₅	3	18	3	22	2	22	2	22	1	22

Done BY
M. DAMACHANDRAN
M.D.M.

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Page 8-9: Minimal data for larval repellent activity -
for Manuscript Table 5