

# Supplementary Materials: Insecticide Effect of Zeolites on the Tomato Leafminer *Tuta absoluta* (Lepidoptera: Gelechiidae)

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**Table S1.** Percentage corrected mortality ( $\pm$ SE) of *Tuta absoluta* eggs in topical and residual bioassays, using the insecticide materials presented in Table 1 ( $n = 8$ ).

Treatment	Egg Mortality (%)					
	Mortality			Corrected Mortality		
	400 mg·L <sup>-1</sup>	4000 mg·L <sup>-1</sup>	20,000 mg·L <sup>-1</sup>	400 mg·L <sup>-1</sup>	4000 mg·L <sup>-1</sup>	20,000 mg·L <sup>-1</sup>
<b>Topical Bioassay</b>						
Control	7.1 $\pm$ 2.66	7.1 $\pm$ 2.66	7.1 $\pm$ 2.66			
Z-1	7.5 $\pm$ 3.65	10.0 $\pm$ 3.78	10.0 $\pm$ 3.78	0.4 $\pm$ 4.87	3.1 $\pm$ 4.98	3.1 $\pm$ 4.98
Z-2	15.0 $\pm$ 3.27	20.0 $\pm$ 5.35	30.0 $\pm$ 5.35	8.5 $\pm$ 4.55	13.9 $\pm$ 6.44	24.6 $\pm$ 6.47
Z-3	15.0 $\pm$ 3.27	12.5 $\pm$ 5.26	25.0 $\pm$ 3.27	8.5 $\pm$ 4.55	5.8 $\pm$ 6.35	19.2 $\pm$ 4.57
Z-4	17.5 $\pm$ 2.50	22.0 $\pm$ 5.54	20.0 $\pm$ 4.71	11.2 $\pm$ 3.94	16.0 $\pm$ 6.63	13.9 $\pm$ 5.84
Z-5	31.1 $\pm$ 3.51	26.0 $\pm$ 4.27	30.0 $\pm$ 6.15	25.8 $\pm$ 4.80	20.3 $\pm$ 5.45	24.6 $\pm$ 7.25
Z-6	25.0 $\pm$ 5.00	18.0 $\pm$ 4.67	22.5 $\pm$ 4.53	19.2 $\pm$ 6.12	11.7 $\pm$ 5.79	16.5 $\pm$ 5.68
Z-7	10.0 $\pm$ 3.78	7.5 $\pm$ 5.26	7.5 $\pm$ 3.66	3.1 $\pm$ 4.98	0.4 $\pm$ 6.35	0.4 $\pm$ 4.87
Z-8	15.0 $\pm$ 5.00	16.7 $\pm$ 4.14	27.5 $\pm$ 5.26	8.5 $\pm$ 6.10	10.3 $\pm$ 5.31	21.9 $\pm$ 6.38
Z-9	17.5 $\pm$ 5.90	17.5 $\pm$ 4.53	22.5 $\pm$ 5.90	11.2 $\pm$ 6.98	11.2 $\pm$ 5.67	16.6 $\pm$ 6.99
C-1	95.0 $\pm$ 3.27	92.5 $\pm$ 3.66	95.0 $\pm$ 3.27	94.6 $\pm$ 5.29	91.9 $\pm$ 5.54	94.6 $\pm$ 5.29
B-1	4.3 $\pm$ 2.28	4.7 $\pm$ 2.12	11.4 $\pm$ 4.04	0.0 $\pm$ 0.00	0.0 $\pm$ 0.00	4.6 $\pm$ 5.21
B-2	2.9 $\pm$ 2.86	8.6 $\pm$ 4.04	12.5 $\pm$ 5.26	0.0 $\pm$ 0.00	1.5 $\pm$ 5.21	5.8 $\pm$ 6.35
<b>Residual Bioassay</b>						
Control	4.3 $\pm$ 2.28	4.3 $\pm$ 2.28	4.3 $\pm$ 2.28			
Z-1	32.5 $\pm$ 3.66	32.5 $\pm$ 6.48	35.0 $\pm$ 7.32	29.5 $\pm$ 4.56	29.5 $\pm$ 7.21	32.1 $\pm$ 8.04
Z-2	17.5 $\pm$ 5.90	27.5 $\pm$ 5.26	25.0 $\pm$ 5.00	13.8 $\pm$ 6.62	24.3 $\pm$ 6.02	21.6 $\pm$ 5.76
Z-3	22.5 $\pm$ 7.01	32.5 $\pm$ 5.26	30.0 $\pm$ 6.55	19.0 $\pm$ 7.71	29.5 $\pm$ 6.03	26.9 $\pm$ 7.27
Z-4	15.0 $\pm$ 5.00	30.0 $\pm$ 6.55	32.5 $\pm$ 6.48	11.2 $\pm$ 5.75	26.9 $\pm$ 7.27	29.5 $\pm$ 7.21
Z-5	12.5 $\pm$ 3.66	35.0 $\pm$ 5.00	40.0 $\pm$ 5.35	8.6 $\pm$ 4.51	32.1 $\pm$ 5.79	37.3 $\pm$ 6.13
Z-6	22.5 $\pm$ 5.90	42.5 $\pm$ 4.53	47.5 $\pm$ 6.48	19.0 $\pm$ 6.62	39.9 $\pm$ 5.38	45.2 $\pm$ 7.25
Z-7	20.0 $\pm$ 5.35	22.5 $\pm$ 5.90	25.0 $\pm$ 5.00	16.4 $\pm$ 6.08	19.0 $\pm$ 6.62	21.6 $\pm$ 5.76
Z-8	17.5 $\pm$ 4.53	30.0 $\pm$ 3.78	27.5 $\pm$ 3.66	13.8 $\pm$ 5.31	26.9 $\pm$ 4.65	24.3 $\pm$ 4.54
Z-9	20.0 $\pm$ 5.35	37.5 $\pm$ 7.96	30.0 $\pm$ 5.35	16.4 $\pm$ 6.08	34.7 $\pm$ 8.69	26.9 $\pm$ 6.10
C-1	25.0 $\pm$ 6.27	25.0 $\pm$ 5.00	32.5 $\pm$ 3.66	21.6 $\pm$ 6.99	21.6 $\pm$ 5.76	29.5 $\pm$ 4.56
B-1	4.0 $\pm$ 1.84	8.0 $\pm$ 3.04	10.0 $\pm$ 2.41	0.0 $\pm$ 0.00	3.9 $\pm$ 3.97	6.0 $\pm$ 3.46
B-2	9.1 $\pm$ 4.15	10.9 $\pm$ 3.15	18.2 $\pm$ 4.23	5.0 $\pm$ 4.94	6.9 $\pm$ 4.06	14.5 $\pm$ 5.03

**Table S2.** Percentage corrected mortality ( $\pm$ SE) of *Tuta absoluta* eggs and larvae in topical and residual bioassays, using the insecticide materials presented in Table 1 ( $n = 8$ ).

Treatment	Egg + Larvae Mortality (%)					
	Mortality			Corrected Mortality		
	400 mg·L <sup>-1</sup>	4000 mg·L <sup>-1</sup>	20,000 mg·L <sup>-1</sup>	400 mg·L <sup>-1</sup>	4000 mg·L <sup>-1</sup>	20,000 mg·L <sup>-1</sup>
<b>Topical Bioassay</b>						
<b>Control</b>	8.6 $\pm$ 3.45	8.6 $\pm$ 3.45	8.6 $\pm$ 3.45			
<b>Z-1</b>	32.5 $\pm$ 6.48	32.5 $\pm$ 5.26	40.0 $\pm$ 5.35	26.2 $\pm$ 8.09	26.2 $\pm$ 6.95	34.4 $\pm$ 7.08
<b>Z-2</b>	32.5 $\pm$ 3.66	37.5 $\pm$ 4.53	47.5 $\pm$ 3.66	26.2 $\pm$ 5.59	31.6 $\pm$ 6.35	42.6 $\pm$ 5.73
<b>Z-3</b>	35.0 $\pm$ 3.27	35.0 $\pm$ 3.27	42.5 $\pm$ 4.53	28.9 $\pm$ 5.32	28.9 $\pm$ 5.32	37.1 $\pm$ 6.39
<b>Z-4</b>	32.5 $\pm$ 6.48	46.0 $\pm$ 4.27	40.0 $\pm$ 5.77	26.2 $\pm$ 8.09	40.9 $\pm$ 6.20	34.4 $\pm$ 7.47
<b>Z-5</b>	40.0 $\pm$ 3.33	40.0 $\pm$ 2.98	42.0 $\pm$ 4.67	34.4 $\pm$ 5.41	34.4 $\pm$ 5.16	36.6 $\pm$ 6.50
<b>Z-6</b>	45.0 $\pm$ 3.27	36.0 $\pm$ 4.00	42.5 $\pm$ 4.53	39.8 $\pm$ 5.42	30.0 $\pm$ 5.89	37.1 $\pm$ 6.39
<b>Z-7</b>	22.5 $\pm$ 7.01	20.0 $\pm$ 7.56	22.5 $\pm$ 5.90	15.2 $\pm$ 8.56	12.5 $\pm$ 9.10	15.2 $\pm$ 7.50
<b>Z-8</b>	30.0 $\pm$ 6.55	40.0 $\pm$ 3.48	52.5 $\pm$ 5.26	23.4 $\pm$ 8.14	34.4 $\pm$ 5.52	48.1 $\pm$ 7.12
<b>Z-9</b>	40.0 $\pm$ 6.55	52.5 $\pm$ 3.66	52.5 $\pm$ 5.26	34.4 $\pm$ 8.20	48.1 $\pm$ 5.80	48.1 $\pm$ 7.12
<b>C-1</b>	100.0 $\pm$ 0.00	100.0 $\pm$ 0.00	100.0 $\pm$ 0.00	100.0 $\pm$ 5.34	100.0 $\pm$ 5.34	100.0 $\pm$ 5.34
<b>B-1</b>	10.0 $\pm$ 3.48	10.6 $\pm$ 2.50	18.6 $\pm$ 3.90	1.6 $\pm$ 5.36	2.2 $\pm$ 4.66	10.9 $\pm$ 5.71
<b>B-2</b>	2.9 $\pm$ 2.86	17.1 $\pm$ 2.86	20.0 $\pm$ 5.35	0.0 $\pm$ 0.00	9.4 $\pm$ 4.92	12.5 $\pm$ 6.98
<b>Residual Bioassay</b>						
<b>Control</b>	8.6 $\pm$ 4.04	8.6 $\pm$ 4.04	8.6 $\pm$ 4.04			
<b>Z-1</b>	62.5 $\pm$ 4.27	57.5 $\pm$ 5.56	60.0 $\pm$ 9.43	59.0 $\pm$ 6.94	53.5 $\pm$ 7.88	56.3 $\pm$ 11.49
<b>Z-2</b>	45.0 $\pm$ 6.90	57.5 $\pm$ 5.56	50.0 $\pm$ 5.04	39.8 $\pm$ 8.92	53.5 $\pm$ 7.88	45.3 $\pm$ 7.34
<b>Z-3</b>	55.0 $\pm$ 5.91	67.5 $\pm$ 6.11	67.5 $\pm$ 7.07	50.8 $\pm$ 8.15	64.5 $\pm$ 8.50	64.5 $\pm$ 9.35
<b>Z-4</b>	52.5 $\pm$ 10.65	60.0 $\pm$ 8.73	57.5 $\pm$ 9.72	48.1 $\pm$ 12.64	56.3 $\pm$ 10.81	53.5 $\pm$ 11.75
<b>Z-5</b>	40.0 $\pm$ 6.17	65.0 $\pm$ 3.09	67.5 $\pm$ 4.96	34.4 $\pm$ 8.21	61.7 $\pm$ 6.19	64.5 $\pm$ 7.55
<b>Z-6</b>	42.5 $\pm$ 6.61	80.0 $\pm$ 6.17	80.0 $\pm$ 3.56	37.1 $\pm$ 8.63	78.1 $\pm$ 8.78	78.1 $\pm$ 6.83
<b>Z-7</b>	40.0 $\pm$ 8.73	60.0 $\pm$ 6.17	57.5 $\pm$ 7.51	34.4 $\pm$ 10.63	56.3 $\pm$ 8.44	53.5 $\pm$ 9.62
<b>Z-8</b>	47.5 $\pm$ 9.39	62.5 $\pm$ 7.51	52.5 $\pm$ 4.96	42.6 $\pm$ 11.33	59.0 $\pm$ 9.68	48.1 $\pm$ 7.31
<b>Z-9</b>	57.5 $\pm$ 8.31	72.5 $\pm$ 11.23	67.5 $\pm$ 3.45	53.5 $\pm$ 10.38	69.9 $\pm$ 13.42	64.5 $\pm$ 6.47
<b>C-1</b>	97.5 $\pm$ 2.36	100.0 $\pm$ 0.00	100.0 $\pm$ 0.00	97.3 $\pm$ 6.68	100.0 $\pm$ 6.25	100.0 $\pm$ 6.25
<b>B-1</b>	14.0 $\pm$ 3.87	17.0 $\pm$ 3.33	19.2 $\pm$ 3.90	5.9 $\pm$ 6.12	9.2 $\pm$ 5.74	11.6 $\pm$ 6.16
<b>B-2</b>	10.9 $\pm$ 4.15	14.6 $\pm$ 2.82	20.0 $\pm$ 4.02	2.6 $\pm$ 6.33	6.5 $\pm$ 5.39	12.5 $\pm$ 6.26



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