

Effects of silica level on whitebacked planthopper

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Survival of whitebacked planthopper (WBPH) nymphs on rice seedlings growing in culture solution with three silica (SiO₂) levels was examined.

from 5.5 to 6.0. Each silica level was replicated five times.

When plants were 15 and 30 days old, 10 first-instar nymphs were introduced in each cage.

On plants treated with silica, very few nymphs developed into adults (Table 1). At 15 days after infestation, the highest number of adults was recorded on plants with no silica.

For population buildup counts, 5 pairs of 3- to 5-day-old WBPH adults

were introduced in each cage. Surviving adults were counted 5 days after caging. Progeny were counted when plants were 35 days old.

The number of nymphs was highest at 0 ppm SiO₂ and lowest at 150 ppm (Table 2). The number of males increased as silica concentration increased.

Apparently SiO₂ induces development of males but inhibits feeding of WBPH. ■

Table 1. Effect of silica on survival of whitebacked planthoppers^a at IRRI.

SiO ₂ (ppm) in culture solution	Av no. leaves/plant	Surviving whitebacked planthoppers ^b (no.)								
		10 DAI		15 DAI		20 DAI		25 DAI		
		N	A	N	A	N	A	N	A	NG
0	6.8 a	8.6 a	1.4 a	5.4 a	4.2 a	0.0 b	9.2 a	0.0 a	9.2 a	53.0 a
50	5.2 b	8.0 a	0.2 b	5.4 a	2.2 b	0.0 b	7.0 b	0.0 a	7.0 b	0.0 b
100	4.2 b	6.6 b	0.0 b	5.0 a	1.8 b	0.4 ab	5.8 c	0.0 a	6.2 b	0.0 b
150	4.2 b	6.4 b	0.0 b	4.6 a	1.2 b	0.8 a	5.0 c	0.0 a	5.8 b	0.0 b

^aAv of 5 replications. Separation of means in a column and under each level by Duncan's multiple range test at the 5% level. ^bDAI = days after infestation, N = nymphs, A = adults, NG = new generation.

One 10-day-old seedling of variety N22 (*Wbph* 1 gene for resistance to WBPH) was transplanted to each pot containing a culture solution. Each pot was put in a cage. A 60-liter culture solution contained 100 ml N, 100 ml P, 100 ml K, 100 ml Ca, 100 ml Mg, 10 ml microelements, 60 ml Fe EDTA. Graded levels of silica as sodium metasilicate (Na₂SiO₃5H₂) were added to the culture solution and the pH adjusted

Table 2. Population buildup of whitebacked planthopper on N22 rice variety grown with different levels of SiO₂ at IRRI.^a

SiO ₂ (ppm) in culture solution	Leaves (no.)	Mortality (%) 5 DAI	25 DAI			
			Nymphs (no.)	Males (no.)	Females (no.)	Total
0	1.2 a	16.0 a	188.2 a	35.6 c	25.4 a	249.2 a
50	4.2 b	36.0 a	100.6 ab	42.4 bc	21.8 b	164.8 ab
100	4.4 b	24.0 a	91.8 b	52.6 ab	17.4 c	167.8 abc
150	4.4 b	28.0 a	61.4 b	53.8 a	18.2 c	133.4 bc

^aAv of 5 replications. Separation of means in a column under each level by Duncan's multiple range test at the 5% level. DAI = days after infestation.

Disruption of striped rice borer males' orientation to pheromone traps

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Disruption of male striped rice borer (*Chilo suppressalis*) orientation to monitoring traps by a single spray application of pheromone was investigated in paddy fields in 1981. Microencapsulated pheromone formulation as a mixture of (z)-11-hexadecenal and (z)-13-octadecenal at 4.5:1 was prepared by urea (1) formalin (2) copolymerization, mixed with a spreader, and sprayed at 10 mg and 30 mg on weeds of paddy

Disruption by microencapsulated pheromone of male striped borer moth orientation to monitoring hap.^a Korea, 1981.

Time after pheromone application (days)	Males trapped (no.)					
	10 mg		30 mg ^b			
	Treated	Not treated	Treated	Not treated	Treated	Not treated
Before treatment	5	19	9	11	23	19
1	0	4	0	2	0	6
2	0	1	0	1	0	8
3	1	1	0	2	0	6
4	0	0	0	1	0	10
5	1	0	0	1	0	7
6	0	1	0	1	0	2
7	0	0	0	1	0	3
8	1	0	2	3	0	4
9	1	1	0	2	0	1
10	1	1	0	2	0	2
11	0	0	0	0	1	4
12	0	1	3	4	1	0
13	0	0	2	2	0	1
14	0	2	3	3	3	3
Total trapped	5	12	10	25	5	57

^aTrap baited with 100 μg pheromone as the attractant source. ^b30 mg applications in two different areas.