

サトウキビ白葉病の主要な媒介虫に対し高い効果を示す殺虫剤

An effective pesticide against the dominant insect vector of sugarcane white leaf disease

サトウキビ白葉病は、東南アジア等で発生し、タイのサトウキビ生産において特に大きな経済的被害を及ぼしている虫媒伝染性のファイトプラズマ病である。本病の媒介虫であるタイワンマダラヨコバイの防除に適した殺虫剤を探索したところ、ジノテフラン1%粒剤は、サトウキビ白葉病の主要媒介虫であるタイワンマダラヨコバイに対し高い殺虫効果を有するが、サトウキビ圃場でズイムシ防除用に放飼されている天敵昆虫への影響が少ないことが明らかになった。本剤は健全種茎増殖圃場で本病の虫媒感染リスクを低下させる技術の開発に利用できる。

Sugarcane white leaf (SCWL) disease is an insect-borne disease that severely affects sugarcane production in Southeast Asia, especially in Thailand. We screened insecticides that have shown high efficacy to the vector insect, *Matsumuratettix hiroglyphicus*. From the experiment results, we found that dinotefuran 1% granule showed high efficacy against *M. hiroglyphicus* and that the impact to the natural enemies was not significant. Thus, this pesticide may be used toward developing techniques to reduce the risk of SCWL disease invasion by insect vectors on healthy seed cane at propagation fields.

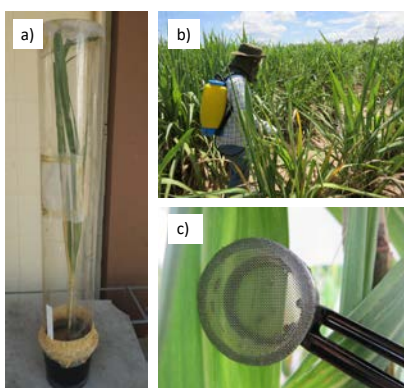


図1 ガラス室および圃場実験の方法
Fig. 1. Greenhouse (indoor) and field (outdoor) testing methods.

- a) 室内実験で使ったポット
The pot used for the greenhouse condition test.
- b) 薬剤散布時のサトウキビ圃場
Sugarcane field for the field test.
- c) 媒介虫が放飼された小型ケージ
The small leaf cage for the field test.

表1 室内条件下におけるタイワンマダラヨコバイに対する残効性
Table 1. Residual effect of pesticide treatments in *M. hiroglyphicus* mortality under laboratory condition.

Chemical treatment	Mortality ± S.E. (%)		
	1 day after	7 days after	30 days after
Carbaryl 85% WP	100 ± 0a	100 ± 0a	0 ± 0b
Carbosulfan 20% W/V EC	100 ± 0a	100 ± 0a	0 ± 0b
Carbofuran 3% GR	0 ± 0b	40.6 ± 6.0b	0 ± 0b
EPN 45% W/V EC	100 ± 0a	100 ± 0a	0 ± 0b
Lambda-cyhalothrin 2.5% W/V EC	100 ± 0a	78.1 ± 6.0a	6.3 ± 6.3b
Thiamethoxam 25% WG	100 ± 0a	100 ± 0a	87.5 ± 5.1a
Dinotefuran 1% GR	93.8 ± 6.3a	100 ± 0a	100 ± 0a
Distilled water	3.1 ± 3.1b	0 ± 0c	0 ± 0b

Values with different letters within columns indicate significant difference based on Tukey's honest significant difference test ($P < 0.05$).

表2 野外条件下におけるタイワンマダラヨコバイに対する残効性
Table 2. Residual effect of selected pesticide treatments in *M. hiroglyphicus* mortality under field condition

Chemical treatment	Mortality ± S.E. (%)			
	1 day after	7 days after	30 days after	60 days after
Lambda-cyhalothrin	34.7 ± 18.5b	4.0 ± 2.3b	1.3 ± 1.3b	2.7 ± 1.3ab
Thiamethoxam	100 ± 0a	98.6 ± 1.3a	30.7 ± 10.4a	9.3 ± 5.8ab
Dinotefuran	98.7 ± 1.3a	100 ± 0a	98.7 ± 1.3a	49.3 ± 13.1a
Distilled water	5.3 ± 2.7b	1.3 ± 1.3b	2.7 ± 2.7b	1.3 ± 1.3b

Values with different letters within columns indicate significant difference based on Tukey's honest significant difference test ($P < 0.05$).

表3 天敵類に対する殺虫剤の影響
Table 3. Residual effect of the selected pesticides to *Cotesia flavipes* and *Trichogramma confusum*

Chemical treatment	<i>C. flavipes</i>			<i>T. confusum</i>		
	Mortality ± S.E. (%)			Mortality ± S.E. (%)		
	1 day after	7 days after	30 days after	1 day after	7 days after	30 days after
Lambda-cyhalothrin	79.0 ± 6.4a	11.0 ± 8.6a	5.0 ± 1.6a	73.0 ± 3.4b	20.5 ± 3.0b	11.0 ± 3.3a
Thiamethoxam	65.0 ± 5.0a	8.0 ± 2.0a	8.0 ± 2.6a	98.0 ± 2.0a	41.5 ± 7.2a	12.0 ± 3.7a
Dinotefuran	6.0 ± 1.9b	4.0 ± 1.9a	2.0 ± 1.2a	17.0 ± 3.7c	14.0 ± 2.0b	5.0 ± 2.2a
Distilled water	1.0 ± 1.0b	2.0 ± 1.2a	0 ± 0a	10.0 ± 2.2c	9.5 ± 2.2b	3.0 ± 2.0a

Values with different letters within columns indicate significant difference based on Tukey's honest significant difference test ($P < 0.05$).

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