

Pingtung University of Science and Technology

TAIWAN

The control effect of Kanzawa spider mite (Tetranychus kanzawai Kishida)

LinkNoPests-PLUS - non-toxic and broad-spectrum **Plant Protectant**

Test Report on the control effect of Kanzawa spider mite

Test execution unit: National Pingtung University of Science and Technology

Project purpose:

The Department of Plant Medicine of National Pingtung University of Science and Technology (hereinafter referred to as Party B) is a teaching and research center for plant medicine in southern Taiwan, specializing in agricultural pest control. GU Green Energy Technology Co., Ltd. (hereinafter referred to as Party A) who want to aware of its self-developed non-toxic and broad-based pest protectant for the control effect of **Kanzawa spider mite**. The two sides agreed to conduct industry-university cooperation and implement the "Non-toxic and broad-spectrum pest protective agent against **Kanzawa spider mite** control effect test program".

Project Host: Department of Plant Medicine: Assistant Professor Chen Wenhua

Co-host of the program: Department of Plant Medicine: Assistant Professor Zhang Cuiyin

Researcher: Department of Plant Medicine: Liu Jiayi

Execution period of the plan: The entire plan: January 15, 2016 to July 15, 2016

Plan implementation location: National Pingtung University of Science and Technology Campus, Taiwan.

Important work items and implementation methods

1. Spraying once control effect test: in the laboratory of the Department of Plant Medicine of Pingtung University of Science and Technology, the green bean is used to feed the Kanzawa spider mite, and the sprayer is used for the control effect test. Divided into 100-times dilution of non-toxic and broad-acting plant protectant- **LinkNoPests;-PLUS**, 200-times dilution of non-toxic and broad-acting plant protectant- **LinkNoPests;-PLUS**, 300-times dilution of non-toxic and broad-acting plant protectant- **LinkNoPests;-PLUS**, and control group (RO water), sprayed with sprayer 2ml, each Thirty female mites were treated, counted once every 24 hours, three consecutive times, three replicates per treatment, and Record the number of death mite separately, and the control rate was calculated.

2. Continuous 2nd spraying effect test: It was carried out in the laboratory of the Department of Plant Medicine of Pingtung University of Science and Technology. It was tested by the sprayer for prevention and treatment. It was divided into 100-times dilution solution of non-toxic and broad-spectrum plant protectant- **LinkNoPests;-PLUS**, non-toxic and broad-effect plant protection- **LinkNoPests;-PLUS** 200 times dilution of the agent, 300 times dilution of the non-toxic and broad spectrum plant protectant- **LinkNoPests;-PLUS**, and the control group (RO water), spray 2ml with sprayer, 30 female mites per treatment, observe once every 72 hours after treatment, spray once again after counting, and count once every 24 hours after the second treatment, for 2 times, each treatment Three repetitions, respectively record the number of death mite, and calculated the rate of prevention.

Statistical analysis method: Number of insects if the variable-square analysis with significant resistance, the difference in the number of insects is compared by the least significant difference method (LSD), and the significant level is 5%.

Test Results

Table 1.

Control effect of Kanzawa spider mite on 24 hours after 1st treatment with a non-toxic and broad-based plant protectant.

Drug name and dilution ratio		24 hours after 1 st treatment					
		I	II	III	average	mortality rate	corrected mortality
Plant Protectant	100 times	25	21	20	22.0a	26.7	25.8
Plant Protectant	200 times	23	24	28	25.0a	16.7	15.7
Plant Protectant	300 times	27	22	25	24.7a	17.8	16.9
control group		30	29	30	29.7b	1.1	---

Table 2.

Control effect of Kanzawa spider mite on 48 hours after 1st treatment with a non-toxic and broad-based plant protectant.

Drug name and dilution ratio		48 hours after 1 st treatment					
		I	II	III	average	mortality rate	corrected mortality
Plant Protectant	100 times	23	15	19	19.0a	36.7	33.7
Plant Protectant	200 times	23	21	25	23.0a	23.3	19.8
Plant Protectant	300 times	26	19	25	23.3a	22.2	18.6
control group		30	26	30	28.7b	4.4	---

Table 3.

Control effect of Kanzawa spider mite on 72 hours after 1st treatment with a non-toxic and broad-based plant protectant.

Drug name and dilution ratio		72 hours after 1 st treatment					
		I	II	III	average	mortality rate	corrected mortality
Plant Protectant	100 times	22	10	16	16.0a	46.7	44.2
Plant Protectant	200 times	23	17	22	20.7a	31.1	27.9
Plant Protectant	300 times	22	18	24	21.3a	28.9	25.6
control group		30	26	30	28.7b	4.4	---

Table 4.

Test Report by PUSC

July 2016

Control effect of Kanzawa spider mite on 72 hours after 1st treatment with a non-toxic and broad-based plant protectant.

		72 hours after 1 st treatment					
Drug name and dilution ratio		I	II	III	average	mortality rate	corrected mortality
Plant Protectant	100 times	10	12	12	11.3a	62.2	51.43
Plant Protectant	200 times	10	17	7	11.3a	62.2	51.43
Plant Protectant	300 times	21	17	14	17.3ab	42.2	25.71
control group		24	21	25	23.3b	22.2	---

Table 5.

Control effect of Kanzawa spider mite on 24 hours after 2nd treatment with a non-toxic and broad-based plant protectant.

		24 hours after 2 nd treatment					
Drug name and dilution ratio		I	II	III	average	mortality rate	corrected mortality
Plant Protectant	100 times	2	3	5	3.3a	88.9	81.48
Plant Protectant	200 times	8	8	5	7.0ab	76.7	61.11
Plant Protectant	300 times	14	10	10	10.7b	64.4	40.74
control group		21	16	17	18.0c	40.0	---

Table 6.

Control effect of Kanzawa spider mite on 48 hours after 2nd treatment with a non-toxic and broad-based plant protectant.

		48 hours after 2 nd treatment					
Drug name and dilution ratio		I	II	III	average	mortality rate	corrected mortality
Plant Protectant	100 times	1	1	3	1.7a	94.4	86.49

July 2016

Plant Protectant	200 times	3	8	4	5.0ab	83.3	59.46
Plant Protectant	300 times	11	9	6	8.7bc	71.1	29.73
control group		14	13	10	12.3c	58.9	---

Discuss

By the spraying for the first time, the control rate of the non-toxic and broad-based plant protectant- **LinkNoPests-PLUS** was only 26.7% after 24 hours (Table 1), and there was no significant difference between the 200-times and 300-times dilutions. However, it was significantly different from the control group.

After 48 hours and 72 hours of observation, the 100-times dilution had increased to 36.7% and 46.7% (Table 2, Table 3), but there was no significant difference between the 200-times and 300-times dilutions. There was a significant difference between the control groups. From this result, it is known that the 1st spraying of non-toxic and broad-spectrum plant protectant- **LinkNoPests-PLUS** has nearly 50% control effect on the leaves of Kanzawa spider mite, but its control effect is still not satisfactory.

Therefore, in order to understand the effect of continuous spraying of the second time non-toxic and broad-spectrum plant protectant- **LinkNoPests-PLUS** on the control of Kanzawa spider mite, we sprayed the same concentration of non-toxic and broad-spectrum plant protectant- **LinkNoPests-PLUS** once, and calculated the control rate after 72 hours. As shown in Table 4, the spray rate of 100 times diluted solution reached 62.2% after 72 hours, and there was no significant difference between 62.2% and 42.2% of 200 times and 300 times of dilution, but with the control group (22.2%) The significance of the difference (Table 4), although the results are slightly better than the results of the first test, it is still not ideal.

The control rate of 100 times dilution for 24 hours after spraying for the second time has reached 88.9% (Table 5), and the 200 times dilution has also increased to 76.7%, indicating that the continuous spraying has the effect of increasing the control rate. The control rate of the 100 times dilution at 48 hours after the second spray was as high as 94.4% (Table 6), and the control rate of the 200 times and 300 times dilutions was also increased to 83.3% and 71.1%. **The continuous spraying of the 2nd time non-toxic and broad-spectrum**

Test Report by PUSC

July 2016

plant protectant- **LinkNoPests-PLUS** can effectively prevent the spider mites.