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Study of incidences and control of pests of bird nest fern, *Asplenium* spp. in Hualien area[1]

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The 12 major pests of bird nest fern in Hualien area were identified, and the incidence and infection rate of four important pests: *Pinnaspis buxi*, snails and slugs, *Fusarium* sp. and *Aphelenchoides fragarieae* were surveyed around the year respectively. *Fusarium* leaf blight was found on bird nest fern leaf under condition of high humidity and weak sunlight. Leaf nematode (*A. fragarieae*) damaged fern leaf all around the year. A few ferns may dead because of infesting Southern blight (*Sclerotium rofsii* Sace). The scale insect (*Pinnaspis buxi*) sucks the sap from leaves and decreased leaf growth rate. Snail and slug may feed on fern leaf and causes leaf holes and yield loss. The scale insect may control well by bifenthrin, imidacloprid, malathion and acetamiprid. The using of 6% Metaldehyde RB may decrease the incidence from 31-34% to 11.7% 14 days after treatment and infection rate from 90% to 38.3%.

Key word: bird nest fern, *Asplenium*, incidence, pest, control

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表一、不同藥劑對山蘇柚葉並盾介殼蟲防治效果

Table 1. Control efficacy of *Pinnaspis buxi* of bird nest fern by different insecticides

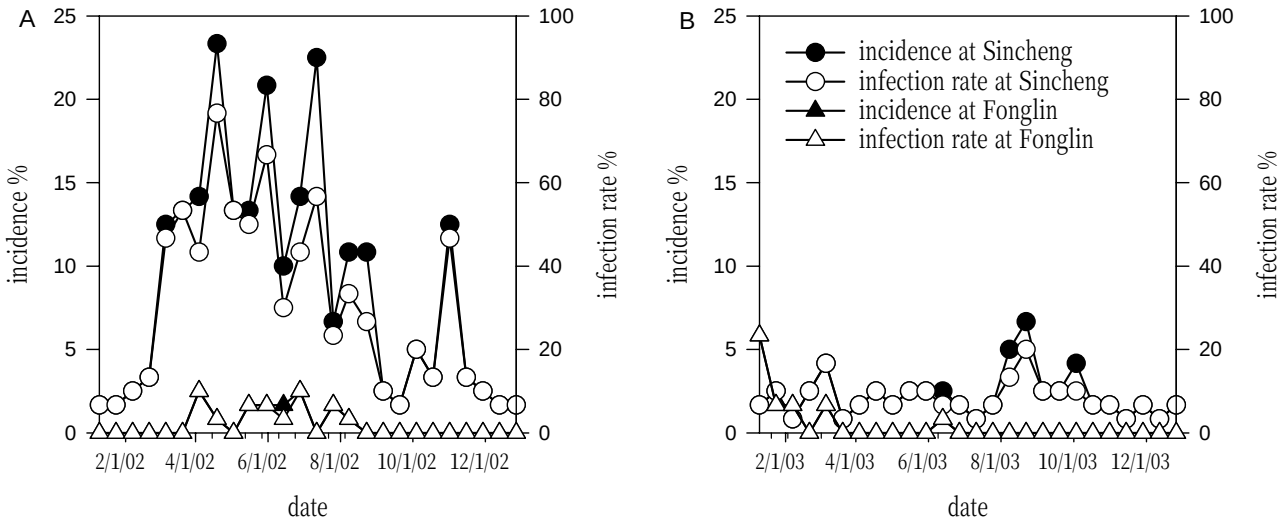
Treatments	Density (individuals/leaf) and control rate (%) after treatment		
	1 day	5 days	7 days
9.6% Imidacloprid SL 1500 ppm	86.7 a*	30.0 b	7.0 b
	12.2%	66.0%	92.5%
2.8% Bifenthrin EC 1500 ppm	89.0 a	30.7 b	6.0 b
	9.8%	65.2%	93.2%
20% Acetamiprid SP 4000 ppm	85.7 a	29.0 b	9.3 b
	13.2%	67.1%	89.4%
50% Malathion EC 800 ppm	70.0 a	21.7 b	8.0 b
	29.1%	75.4%	91.0%
4.5% Azadirachtin EC 1000 ppm	85.0 a	28.3 b	14.7 b
	13.9%	67.8%	83.3%
Neem oil 600 ppm	70.0 a	12.3 b	6.7 b
	29.1%	86.0%	92.4%
Control	98.7 a	88.0 a	88.0 a

*：Means in the same column followed by the different letters are significantly different at $P = 0.05$ (LSD).

表二、不同藥劑對山蘇蝸牛、蛞蝓之防治效果

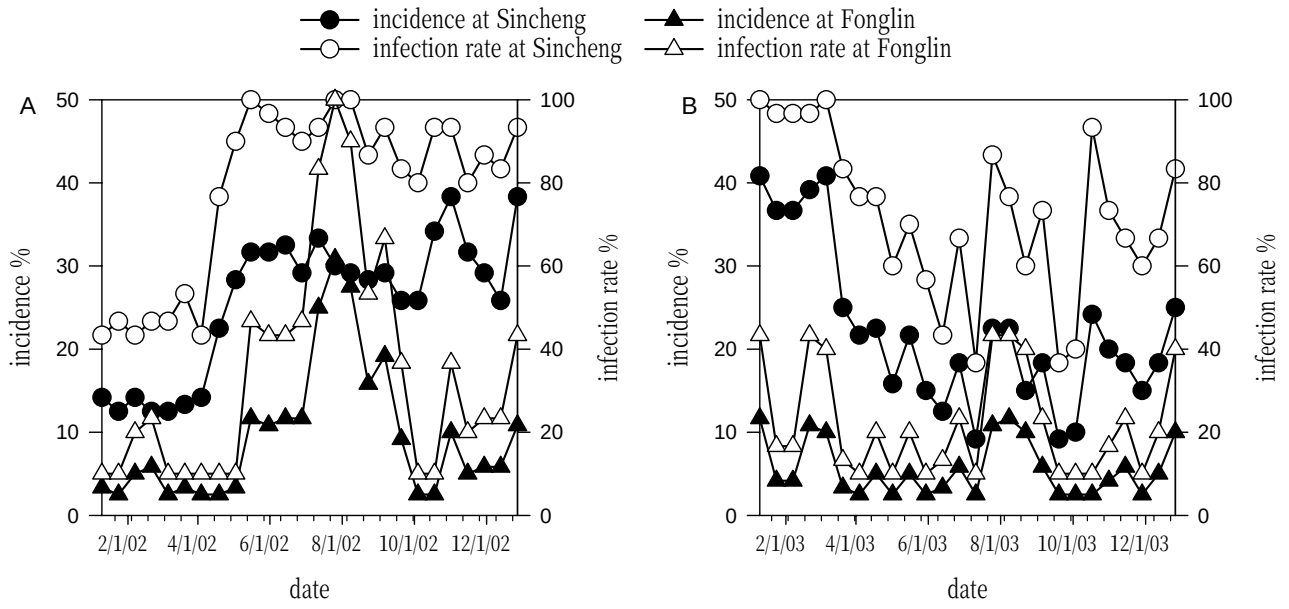
Table 2. Control efficacy of snail and slug of bird nest fern by different treatments

Treatments	Before treatment		7 days after treatment		14 days after treatment	
	Incidence (%)	Infection rate (%)	Incidence (%)	Infection rate (%)	Incidence (%)	Infection rate (%)
Bitter tea dregs 50 kg/ha.	33.8	91.7	16.3	56.7	20.4	63.3
6% Metaldehyde RB 1g/m^2	32.9	91.7	12.5	45.0	11.7	38.3
80% Metaldehyde WP 1.2 kg/ha.	32.5	90.0	18.3	58.3	28.3	73.3
70% Niclosamide WP 1.2 kg/ha.	31.7	90.0	24.2	73.3	31.3	81.7
Control	34.1	92.0	35.5	91.7	33.8	92.0



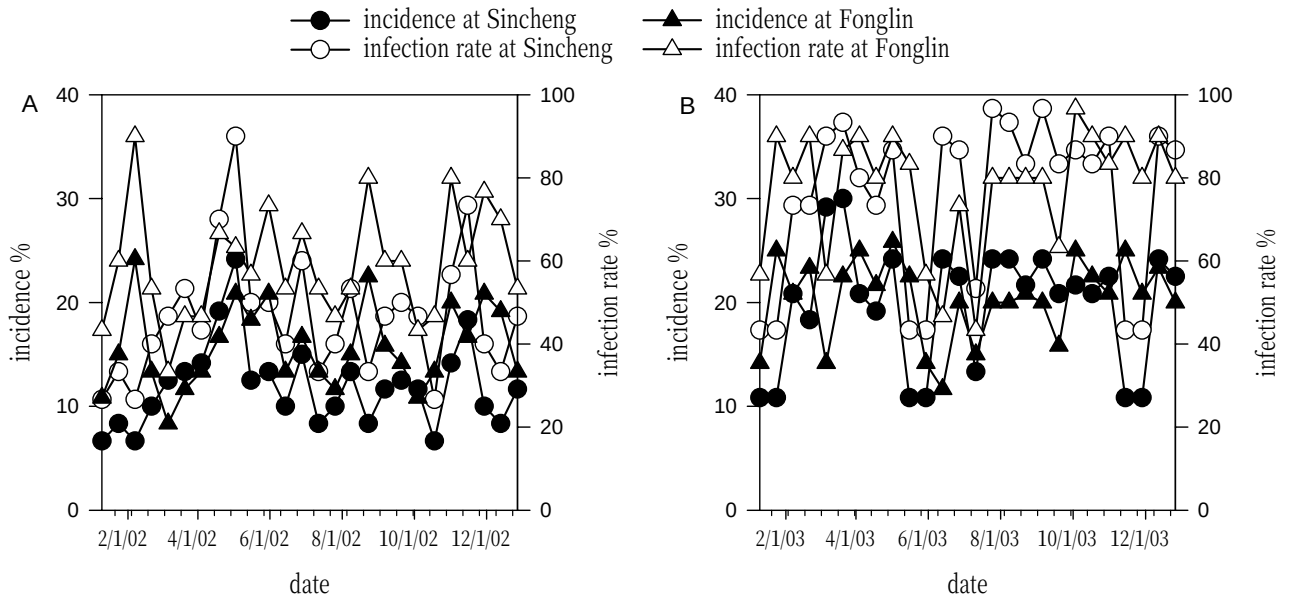
圖一、91~92年新城、鳳林地區山蘇柚葉並盾介殼蟲為害度及被害株率。

Fig. 1. The incidence and infection rate of Pinnaspis buxi of bird nest fern at Sincheng and Fonglin areas in 2002 and 2003.



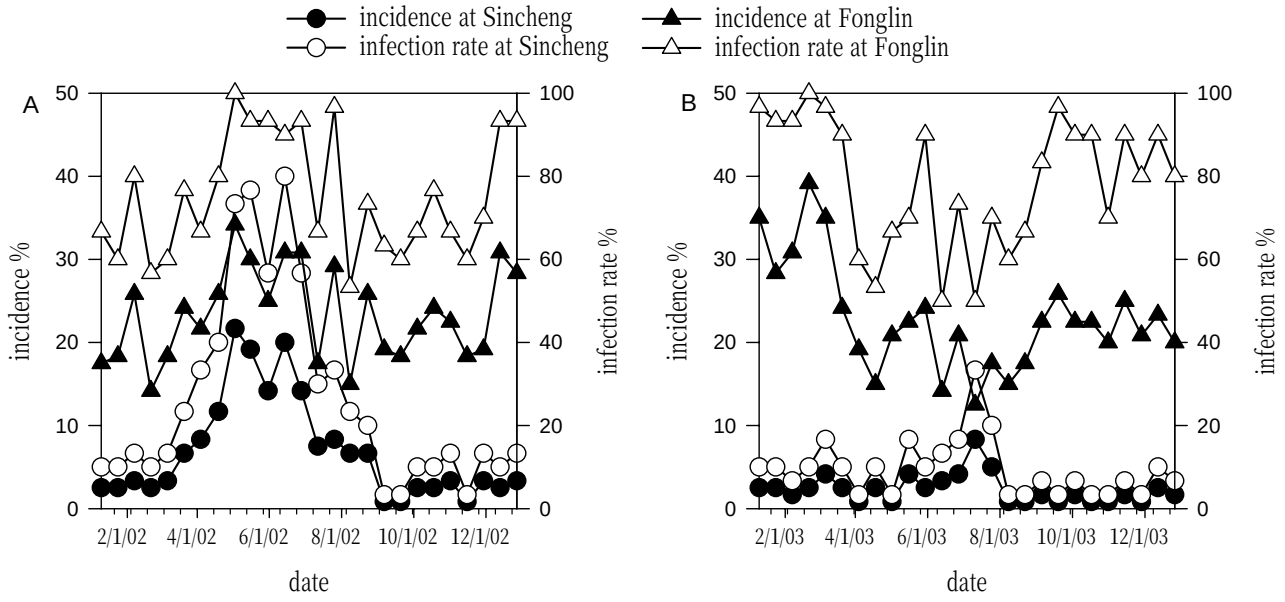
圖二、91~92年新城、鳳林地區山蘇蝸牛蛞蝓為害度及被害株率。

Fig. 2. The incidence and infection rate of snails and slugs of bird nest fern at Sincheng and Fonglin areas in 2002 and 2003.



圖三、91~92年新城、鳳林地區山蘇輪紋病罹病度及罹病株率。

Fig. 3. The incidence and infection rate of fusarium leaf blight of bird nest fern at Sincheng and Fonglin areas in 2002 and 2003.



圖四、91~92年新城、鳳林地區山蘇葉芽線蟲罹病度及罹病株率。

Fig. 4. The incidence and infection rate of leaf nematode of bird nest fern at Sincheng and Fonglin areas in 2002 and 2003.