

Botanical oils and other products for managing powdery mildew in organically-produced cucurbits

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Six plant oil products were tested because good control was achieved with a mineral oil, JMS Stylet-oil, in previous experiments at LIHREC. OxiDate (hydrogen dioxide) was also tested. These 7 products fit the EPA biopesticide definition. Most are OMRI listed. Some are exempt from EPA registration. Sulfur (Microthiol Disperss) was also included. It has performed well previously and will be OMRI listed soon. All products tested provided some control in 2004 of mildew on upper surfaces of pumpkin leaves applied weekly beginning after mildew detection using a tractor-sprayer. GC-3 organic fungicide (30% cottonseed oil, 30% corn oil, 23% garlic extract), Organocide (5% sesame oil; 92% fish oil) and Eco E-Rase (97.5% jojoba oil) were as effective as Microthiol Disperss, JMS Stylet-oil, (organic formulation) and the conventional fungicide Bravo Ultrex (chlorothalonil), providing 77-79% and 73-90% control on upper leaf surfaces based on AUDPC values, respectively, and 36-45% and 32-39% control on lower surfaces. Other plant oil products tested were Bugitol (0.42% capsaicin and related capsaicinoids), Sporan (17.6% rosemary oil; 82.4% wintergreen oil), and Trilogy (70% extract of neem oil). These and OxiDate provided control through 23 Aug, 2 days before application 4, but severity did not differ significantly from nontreated pumpkins on 16 Sep, 4 days after application 7.

Descriptors: {Q1}; Capsaicin; Chlorothalonil; Fungicides; Hydrogen; Leaves; Mildew; Plant extracts; Powdery mildew; Sulfur; mineral oil; neem

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ROOT DRENCHES AND TOPICAL INSECTICIDE TREATMENTS FOR CONTROL OF THE LOBATE LAC SCALE, PARATACHARDINA LOBATA (CHAMBERLIN)

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Additional index words

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Paratachardina lobata

, bifenthrin, imidacloprid,

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Abstract.

Chemical treatments were evaluated for control of the lobate lac scale,

Paratachardina lobata

(Chamberlin) (Hemiptera):

Sternorrhyncha: Coccoidea: Kerriidae), an invasive polyphagous pest of woody plants in southern Florida. Root drench treatments with imidacloprid applied as Merit 75WP to large Indian laurel trees,

Ficus retusa

L. (Moraceae), at rates of

0.19, 0.38 and 0.76 g of product per centimeter of trunk diameter, were equally effective in virtually eliminating live lobate lac scales within 103 days after applications of treatments. Samples taken 523 days post-treatment indicated that the trees had

not become reinfested. Of seven treatments tested as topical applications for reducing the percentage of live lobate lac scales on wax-myrtle shrubs,

Myrica cerifera

L.(Myricaceae),

bifenthrin and imidacloprid were highly effective based on sampling at four weeks post-treatment. **Organocide (containing fish and sesame seed oils and lecithin) and malathion in combination with paraffinic horticultural oil were moderately effective.** In a separate test, bifenthrin formulated as Onyx was highly effective in reducing the percentage of live 1st instars and matures when applied with or without Hasten spreader sticker to infested

Inga edulis

Martius (Fabaceae).

Table 3. Mean percentages of lobate lac scale mature females alive on twig samples from wax-myrtle shrubs treated with eight different topical treatments.

Treatments

Mean percentages and standard deviations of lobate lac scale

mature females alive on twig samples from wax-myrtle shrubs treated with seven different treatments.

Rate

(mL/L)

Pre-treatment

Live females (%)

Four weeks post-treatment

Live females (%) Live first instars (%)

Mean SD Mean SD

Onyx + Hasten 1 + 1 56.0 8.1 a 9.3 0.7 a 2.6

Advanced Garden Tree and Shrub

Insect Control

2 59.5 10.2 a 13.6 12.7 a 22.5

Malathion Plus 2.6 76.0 52.7 bc 37.9 58.0 b 30.0

Sunspray Ultrafine Oil 9.9 86.0 49.3 bc 27.2 58.7 b 31.4

Malathion Plus + Sunspray Oil 2.6 + 9.9 68.1 24.8 ab 27.1 12.0 a 17.4

Organocide 16 90.0 24.5 ab 16.9 9.0 a 15.5

Systemic Insect Killer (acephate) 11 75.0 63.6 c 27.1 44.7 b 30.0

Untreated 69.8 70.0 c 30.5 80.7 c 19.0