



PATH-AWAY HAPPENINGS

Dateline September 15, 2016: Strategic Partner Introduction

The ability to bring cutting edge technology to any industry is only as strong as the people involved. We have strived to seek out the brightest and most innovative people as our “Strategic Partners.”

As a company our philosophy is that we don’t do it as it has always been done in the past. That is settling for what has been. We want better and more innovative for the future.



Professor Arlene C. Alegre
Camarines Norte State College

Q: Professor tell us a little about your educational background.

A: I received my BS in Agriculture with a Major in Plant Pathology and a Minor in Horticulture from the University of the Philippines at Los Banos (UPLB). My area of specialization was in Phytobacteriology. From there I did my MS in Plant Protection, again Majoring in Plant Pathology at Central Bicol State University for Agriculture.

I followed that up by completing my Ph.D. in Plant Science majoring in Horticulture.

Q: What professional organizations do you belong to?

A: I stay actively involved in the following:

- i. Philippine Psychopathological Society where I am a member.
- ii. Federation of Organic Practitioners in Camarines Norte and I am President of the organization.

Q: And your current position is what?

I am an Assistant Professor at Camarines Norte State College and one of a department College Researcher.

Q: How and where did you first hear about the Path-Away® product?

A: I first saw information about the Path-Away® product line on the internet while searching for a biological or organic pesticide I could use for my organic production of vegetables at my school.

Q: When you initially tried the product what were your observations?

A: I found the Path-Away® product line to be very effective when used to combat fungal and bacterial diseases on organically grown vegetables. We here in the organization are pushing organic agriculture as part of our advocacy and as President of the FOAP-CN I can see that the Path-Away® products will be our biggest partner in attaining our vision towards organic production. **See attached news!**

ANTI-PATHOGENIC PLANT EXTRACT SOLUTION: A PRELIMINARY STUDY ON PEST CONTROL OF ORGANICALLY GROWN CROPS

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Abstract

The study primarily aimed to provide a non-toxic and environmental friendly pest and disease control solution suitable for pests attacking organically grown crops in Camarines Norte. Initial treatments of anti-pathogenic plant extract solution on different pests of organically grown vegetables, botrytis of strawberry grown in aquaponic, coconut scale insect and pineapple mealy bug yielded positive results.

In vegetables, application of 3% anti-pathogenic solution by surface spraying on seed-bed three (3) days before sowing increased germination rate by 20%. Also, application of the same concentration before transplanting of vegetables reduced incidences of bacterial wilt and damping-off. In strawberry, fogging with 2% of the anti-pathogenic solution at flowering stage decreased incidences of Botrytis in lowland and aquaponically grown strawberry. Higher concentration of anti-pathogenic solution was found effective in controlling scale insect of coconut trees in Brgy. Colong-colong and queen pineapple infested with mealy bugs in Calasgasan. Both recovered after two sprayings with 5% concentration of the anti-pathogenic solution.

Introduction

Disease and insect pest management presents a never ending challenge to organic farmers. Basing from the organic standards, insect pest and disease problems may be controlled through cultural, mechanical or physical methods, augmentation and other non-synthetic controls. Basically, when these practices are insufficient to prevent or control crop pests, organic farmers are left with no alternative to save their crops and the hard earned investment.

Finding an organic solution that works both for insect pests and diseases is almost a miracle for farmers. This anti-pathogenic solution is being used to disinfect buildings, cars, home kitchen and baths to eliminate pathogenic microorganisms causing diseases to humans. In this study, it was being tested for agricultural use to verify its effectiveness in preventing and controlling pests and diseases to organically grown plants taking advantage of its organic and non-toxic properties.

Objectives

Generally, this preliminary study was conducted to assess the potential of the anti-pathogenic plant extract solution in controlling pest and diseases of organically grown crops. Specifically, it sought to (1) provide organic farmers a non-toxic, plant based anti-pathogenic solution for controlling pests and diseases; and (2) determine the different pests and diseases the anti-pathogen solution can control.

Methodology

The anti-pathogenic solution was used to control pests and diseases on preexisting organically grown vegetables, and strawberry plants at the Camarines Norte State College campus, scale insect infesting coconuts in Colong-Colong, Tagkawayan Quezon and mealy bug infecting queen pineapple in Calasgasan, Daet Camarines Norte.

1. Pre-Germination soil treatment.

In germinating vegetable seeds, two pots were prepared both with 1:1 carbonized rice hull and vermicast. One pot was sprayed with 3 percent (%) anti-pathogenic solution three days before two hundred seeds were sown. The numbers of seeds germinated were counted on pots after seven (7) days and percent germination was computed and compared.

2. Control of Botrytis on strawberry plants in aquaponic set up.

Flowering strawberries growing in two (2) aquaponic set up were used as test plants. One set up was treated with 2 % anti-pathogenic solution using a fogger. Incidence of botrytis infected fruits was observed on both set up and was recorded.

3. Control of mealy bug of queen pineapple.

Fifty (50) fruiting queen pineapple in a farm located in Calasgasan, Daet, Camarines Norte with incidence of mealy bug infestation were test sprayed with five percent (5%) anti-pathogenic solution. The pineapple plants were treated twice with seven days interval and were monitored for changes.

4. Control of Coconut scale insect.

A coconut farm with high incidence of scale insect infestation in Barangay Colong-Colong, Tagkawayan, Quezon province was identified for treatment. Ten (10) highly infested coconut trees without previous chemical treatments were marked and sprayed with the anti-pathogenic solution. The trees were treated three times with seven days interval during the first and second treatment and four days after the last. Observations were performed until forty-nine days after first treatment.

Results

1. Pre- germination soil treatment

Seed germination of lettuce (*Latuca sativa*) in non-treated soil medium yielded 131 seedlings with germination rate of 66% while the soil treated with the anti-pathogenic solution yielded 169 seedlings with germination rate of 85%. The pre-germination soil treatment increased the germination rate by 20%.



Figure 1. Germinating *Latuca sativa* on (a) untreated soil medium and (b) treated soil medium.

2. Control of Botrytis on strawberry plants in aquaponic set up.

Spraying strawberry plants in aquaponic set-up at the onset of flowering stage totally eliminate incidence of botrytis infection. Aquaponic plants pests are difficult to control without affecting the fish. In this case, weekly spraying of 2% anti-pathogenic solution starting from the onset of flowering stage totally eliminate the infection. The untreated set up has an incidence of 10 %.



Figure 2. Strawberry fruit showing (a) botrytis infection (b) no infection (c) near harvest healthy fruit and (d) strawberry aquaponic set-up.

3. Control of mealy bug of queen pineapple

Queen pineapple plants showing reddish foliage due to mealy bug infestation were sprayed twice with 5% anti-pathogenic solution (a) were able to recover three weeks after the last treatment (b).



4. Control of Coconut scale insect.

After forty- nine (49) days, coconut trees treated with the solution remained free of infection except 1 tree out of 10 with incidence of new infestation. So far, Thirty-eight (38) days after the last spraying the older trees twice treated with the organic anti-pathogen solution remained free of infestation.



Figure 4. Coconut leaves showing heavy infestation of scale insect (a,b) and coconut leaves recovered from infestation (c).

Recommendations

1. Further assessment as to the pathogenicity of the anti-pathogenic plant extract solution should be performed in a full blown research to obtain conclusive results on germination rate, botrytis of strawberry, queen pineapple mealy bug and coconut scale insect infestation.

2. Explore further the potential of the anti-pathogenic solution in controlling other pests and diseases.