Evaluation of the efficacy of Palladium for control of Colletotrichum sp and Phomopsis sp on selected ornamental hosts.

This project was conducted to evaluate efficacy of Palladium for disease control and to determine the optimum rate of product for control of foliar diseases. Additional considerations are the phytotoxicity of the product on the selected hosts and to compare the Palladium with Medallion and Heritage to local standard for disease control

Materials and Methods:

The test was be set up in a Randomized complete block design with five (5) replicates per treatment. A replicate consisted of single plant in a pot. The test plants were as follows: Azalea cv. Dwarf Red Ruffles was the selected host for *Colletotrichum sp* and *Juniperus davurica 'Parsonii'* was the host for *Phomopsis sp*.

The plants were grown in the greenhouse under normal maintenance for two weeks until the beginning of the test. The test products at the indicated rate were applied as a foliar spray to runoff using a hand held sprayer. One week after the initial product application the plants were prepared for inoculation by subjecting the plants to overhead misting for four hours followed by application of the inoculum as a spray to runoff . The inoculum, a spore suspension, was adjusted to a concentration of 1×10^6 spores per ml of water prior to application.

The inoculated pants were maintained in a moist chamber for 48 hours post inoculation to encourage disease development.

The second product application (foliar spray to runoff) was made 3 days after inoculation and incubation. A third product application, spray to runoff, was made seven days after the second product application.

Data collected: The plants were examined weekly starting one week prior to the first product application and plant height(in cm), general plant condition(100% = normal plant no disease or general un-thriftiness' and 0= dead plant) disease incidence and disease severity)as Percent plant/leaf infected).

Observations continued up to three weeks after the final product application.

Product application and sample dates

	First Application	Inoculation	Second Application	Third Application	
Date	07/06/2009	07/10/2009	07/13/2009	07/20/2009	
Sample dates	07/10/2009	07/17/2009	07/24/2009	08/03/2009	08/10/2009

Table 1. Disease severity and AUDPC for *Colletotricum* sp. on Azalea

	% Severity	AUDPC
T1-Untreated	41.0AB	1018AB
T2-Paladium at 0.16ml/L	51.0AB	1091A
T3-Paladium at 0.32ml/L	41.2AB	974.1AB
T4-Paladium at 0.48ml/L	30.0AB	643.5ABC
T5-Medallion @ 0.16ml/L	23.0BC	577.5BCD
T6-Heritage at 0.32ml/L	10.2C	128.1D
T7-Banner Maxx 0.16ml/L	20.0BC	458.5CD

Values followed by the same letter are not significantly different at P>0.05. ANOVA conducted using SAS 9.1 and means separated using Fisher's LSD. Percent data was arcsine transformed prior to analysis and means separation was determined on the transformed data. AUDPC- Area Under the Disease Progress Curve is a measure of disease severity over the duration of the test.

Disease severity data is taken from the last sample date 24 days after inoculation. Samples taken from infected tissue were recovered and cultured to recover the pathogen. Recovery from infected tissue was positive *Colletotrichum* sp. for 14 of the 19 samples cultured

Evaluating Paladium for control of Colletotrichum sp. Leaf spot shows that none of the rates tested provided disease control significantly different that the inoculated check. Heritage was the only product that effectively reduced disease compared to the inoculated check.

Table 2 Phytotoxicity evaluations for Azaleas treated with selected fungicides

	R1	R2	R3	R4	R5
T1-Untreated	NS	C	C	C	C
T2-Paladium at 0.16ml/L	D	NS	NS	C	C
T3-Paladium at 0.32ml/L	NS	C	C	C	NS
T4-Paladium at 0.48ml/L	NS	NS	c	C	NS
T5-Medallion @ 0.16ml/L	C	C	C	NS	NS
T6-Heritage at 0.32ml/L	Ns	NS	NS	C	C
T7-Banner Maxx 0.16ml/L	C	NS	C	NS	C

C= Chlorotic; NS= No symptoms

Chlorosis was noted on the Azalea plants in this test however the plants were fertilized only at the beginning of the test. The chlorosis appears to be the results of lack of nutrition.

Table 3. Disease severity and AUDPC for *Phomopsis* sp on Juniper

	% Severity	AUDPC
T1-Untreated	5.40B	128.5B
T2-Paladium at 0.16ml/L	7.60B	130.3B
T3-Paladium at 0.32ml/L	4.20B	38.2B
T4-Paladium at 0.48ml/L	7.60B	106.9B
T5-Medallion @ 0.16ml/L	46.0A	1111.1A
T6-Heritage at 0.32ml/L	10.40B	143.4B
T7-Thiophanate-methy l0.4ml/L	7.0B	90.9B

Values followed by the same letter are not significantly different at P>0.05. ANOVA conducted using SAS 9.1 and means separated using Fisher's LSD. Percent data was arcsine transformed prior to analysis and means separation was determined on the transformed data. AUDPC- Area Under the Disease Progress Curve is a measure of disease severity over the duration of the test.

Disease severity data is taken from the last sample date 24 days after inoculation. Samples taken from infected tissue were recovered and cultured to recover the pathogen. Recovery from infected tissue was positive *Phomopsis* sp. for 11 of the 16 samples cultured

Evaluating Paladium for control of Phomopsis sp. dieback on Juniper shows that none of the rates provided disease control significantly different from the inoculated check. The application of Medallion resulted in a significant increase in disease compared to the inoculated check.

Table 4. Phytotoxicity evaluations for Junipers treated with selected fungicides

	R1	R2	R3	R4	R5
T1-Untreated	NS	NS	NS	NS	NS
T2-Paladium at 0.16ml/L	NS	NS	NS	NS	NS
T3-Paladium at 0.32ml/L	NS	NS	NS	NS	NS
T4-Paladium at 0.48ml/L	NS	NS	NS	NS	NS
T5-Medallion @ 0.16ml/L	NS	NS	NS	NS	NS
T6-Heritage at 0.32ml/L	NS	NS	NS	NS	NS
T7-Thiophanate-methyl 0.4ml/L	NS	NS	NS	NS	NS

NS= No symptoms

No symptoms of phytotoxicity are apparent in any of the plants in this test.