

Research Note

LEAF BLIGHT OF SYNGONIUM PODOPHYLLUM SCHOTT "WHITE BUTTERFLY" IN PUERTO RICO^{1,2}

Syngonium podophyllum Schott "White Butterfly" (Nephtytis) is among the ornamentals that have gained considerable acceptance in the United States. González-Villafañe et al.³ reported in 1987 that 621,884 unrooted cuttings, rooted cuttings and potted plants were exported to mainland markets from Puerto Rico.

Recently a blight has been damaging the leaves and petioles of this plant species in Puerto Rico. Dry irregular and brownish lesions sometimes surrounded by a yellow rim, were observed in the foliage of affected plants. In some cases water-soaked spots were observed in the interveinal areas and in the petioles, sometimes extending along the midrib (fig. 1).

Isolations made from lesions revealed the presence of a bacterial organism which produced a yellow buttery-fluidal colony on tryptone glucose agar (TGA) within 36 hours.

Five pots containing three seedlings with four to six leaves each were spray-in-

oculated with an aqueous suspension (10^8 cells/ml) of the isolate. A similar number of noninoculated seedlings were included in the test. Although symptoms induced were not as severe as those observed under natural conditions the pathogen was reisolated from chlorotic leaf spots (fig. 2) 4 to 5 weeks after inoculation. Eventually, these spots enlarged and became necrotic. None of the noninoculated controls developed symptoms of the disease.

Bacterial diseases caused by *X. campestris* pathovars on *Syngonium* had been previously reported in the United States.^{4,6,8} The causal agent was identified by Dickey and Zumoff⁶ who proposed that it be designated *X. campestris* pv. *syngonii*. Our local isolates produce blight symptoms similar to those previously described in the United States and it has phenotypic characteristics of *X. campestris*.⁷ It is a gram negative rod, strictly aerobic, catalase positive and oxidase negative. Results of various physiological and biochemical tests con-

¹Manuscript submitted to Editorial Board 28 March 1990.

²Research supported by the Clinical Laboratory for diagnosis of Plant Disease and Pests, project Z-40-A. Appreciation is expressed to Mr. Jaime Escudero for the photographs.

³González-Villafañe, E., A. L. Díaz, C. Mántaras and E. Mendoza, 1987. Importaciones y Exportaciones de Plantas Ornamentales y Flores en Puerto Rico. Bol. 282, Esta. Exp. Agric., Univ. P.R.

⁴Wehlburg, C., 1970. Bacterial Leaf Blight of *Syngonium*, Plant Pathology Circular No. 91, Fla. Dept. of Agric. and Cons. Serv., Division of Plant Industry, Gainesville, Fla 32602.

⁵Dickey, R. S. and C. H. Zumoff, 1987. Bacterial leaf blight of *Syngonium* caused by a pathovar of *Xanthomonas campestris*. *Phytopathology* 77: 1257-62.

⁶Chase, A. R., P. S. Randhawa and R. H. Lawson, 1988. New disease of *Syngonium podophyllum* "White Butterfly" caused by a pathovar of *Xanthomonas campestris*. *Plant Disease* 72: 74-8.

⁷Dye, D. W., 1980. *Xanthomonas*. In: Laboratory Guide for Identification of Plant Pathogenic Bacteria, pp. 45-49. Bacteriology Committee of American Phytopathological Society, St. Paul, MN.

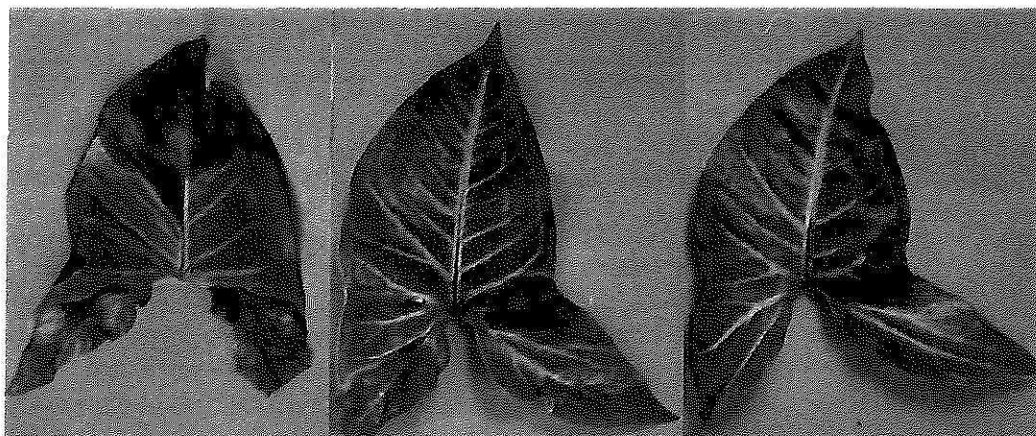


Fig. 1.—Advanced symptoms on leaves of *Syngonium podophyllum* infected under natural conditions.

ducted in Puerto Rico are included in table 1. These characteristics appear to be in accordance with the ones described by Dickey and Zumoff.⁶ The results of our studies indicated that this pathogen belongs to the *X.*

campestris group and perhaps to the pathovar *syngonii*.

This organism had not been reported previously from Puerto Rico as a cause of *Syngonium* leaf blight.

TABLE 1.—Physiological and biochemical reactions of the Puerto Rican *Syngonium podophyllum* isolate

Test	Reaction
1. Gram stain and morphology	—, rod
2. Motility	+
3. Oxygen requirement	aerobic
4. Colony appearance	yellow, buttery
5. Indole	—
6. Arginine dihydrolase	—
7. Nitrite from nitrate	—
8. Hydrogen sulfide production (H ₂ S)	+
9. Action on litmus milk	reduced
10. Liquefaction of gelatine	+, slow
11. Starch hydrolysis	+
12. Esculin hydrolysis	+
13. Salt tolerance: 1% - 5% concentration	2%
14. Action on carbohydrates: 21-day observation	
Maltose	—
Sucrose	+ weak
Glucose	+
Salicin	—
Lactose	—
Mannose	+ weak
Arabinose	+ weak
Trehalose	+ weak



Fig. 2.—Localized chlorotic spots on leaf of *Syngonium podophyllum* following inoculation with the Puerto Rican *Syngonium* isolate. Note initial necrosis on edge of leaf (arrow).

According to Chase⁸ increased rates of either nitrogen or potassium were equally effective in reducing symptom expression of *Syngonium* blight.

Amelia Cortés-Monllor
Associate Bacteriologist
Department of Crop Protection

⁸Chase, A. R., 1989. Effect of nitrogen and potassium fertilizer rates on severity of *Xanthomonas* blight on *Syngonium podophyllum*. *Plant Disease* 73: 972-75.