Predominance of race 4 of the soybean bacterial blight pathogen *Pseudomonas syringae* pv. *glycinea* in eastern Ontario, 1982

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Forty-seven isolates of *Pseudomonas syringae* pv. *glycinea* were obtained from soybean (*Glycine max*) leaves collected during the 1982 growing season from 50 fields located in 12 counties of eastern Ontario. Based on the reactions of seven differential soybean cultivars to inoculation in a growth room, 43 isolates were classed as race 4. The remaining 4 isolates closely resembled race 5 but differed from it by inducing a moderately susceptible reaction in the cv. Lindarin which is known to be resistant to race 5 of the pathogen.

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Quarante-sept isolats de *Pseudomonas syringae* pv. *glycinea* ont été isolés à partir de feuilles de fève soya (*Glycine max*) récoltées durant l'été 1982, dans 50 champs répartis dans 12 comtés de l'est de l'Ontario. En se basant sur les réactions de sept cultivars différentiels de fève soya à l'inoculation en chambre de croissance, 43 isolats ont été identifiés comme faisant partie de la race 4. Les 4 isolats restant ressemble à la race 5 mais en diffère par l'induction d'une réaction de susceptibilité modérée dans le cultivar Lindarin qui est résistant à la race 5 de ce pathogène.

Bacterial blight caused by *Pseudomonas syringae* pv. *glycinea* Young, Dye & Wilkie is a common foliage disease of soybean, *Glycine max* (L.) Merr., in Ontario and elsewhere (1,3,4), but it is not known which races (2,3) of the pathogen are prevalent in eastern Ontario.

During the 1982 growing season, samples of soybean leaves showing symptoms of bacterial blight (4) were collected from 50 fields located in 12 counties in eastern Ontario. A sample was constituted of a least 10 leaves taken from different plants from each field. Isolations were made from young lesions according to standard methods (5). Forty-seven of the isolates resembled a known culture of *P. syringae* pv. *glycinea* isolated by the author at Ottawa in 1977. For race determination, the isolates were tested on seven differential soybean cultivars: Acme, Chippewa, Flambeau, Harosoy, Lindarin, Merit and Norchief (2). Eight unifoliate leaves of potted plants of each cultivar were spray-inoculated with each isolate, using methods described previously (2,3). Plants were kept in a growth room at 22°C, 70% relative humidity, and 16 h photoperiod of 3600 ft/candle (470 micro-Einsteins) light intensity at the plant canopy. Disease reactions on the unifoliate leaves were recorded 7-10 days after inoculation. Tests were performed at least three times with adequate number of control plants sprayed with water only as well as inoculated with known races of the pathogen obtained from Dr. E.W.B. Ward, London, Ontario.

Forty-three of the isolates induced a susceptible reaction in all seven cultivars (Table 1) indicating that they belonged to race 4 of *P. syringae* pv. *glycinea*. The remaining four isolates were similar to race 5 in the reactions of six of the differential cultivars but differed from race 5 because of the production of an intermediate (moderately susceptible) reaction on cv. Lindarin which is resistant to race 5. At present it may not be justifiable to propose the existence of a new race for these four isolates before testing more isolates of this type.

Based on these results race 4 is the most prevalent form of the bacterial blight pathogen in eastern Ontario, as it is in the southwestern part of the province. Work is underway to determine the reactions of newly developed short-season soybean cultivars and lines to race 4.

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Table 1. Reactions of seven differential soybean cultivars to 47 isolates of *P. syringae* pv. *glycinea* from eastern Ontario and to a known culture of race 5.

Cultivars	Disease reaction*		
	43 isolates	4 isolates	Race 5**
Acme	S	R	R
Chippewa	S	R	R
Flambeau	S	R	R
Harosoy	S	S	S
Lindarin	S	I(S)	R
Merit	S	S	S
Norchief	S	R	R

* S = susceptible, I = intermediate, R = resistant.
** Reactions of race 5 on the cultivars were similar to those reported by others (2, 3).

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