BACTERIAL WILT OF WALLFLOWERS IS CAUSED BY KNOWN AND NOVEL RACES OF XANTHOMONAS CAMPESTRIS PV. CAMPESTRIS

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Background

- Wallflowers are a widely-grown herbaceous biennial or perennial in the UK.
- Bacterial wilt or blight was first reported as caused by Xanthomonas campestris in 1970 (Griffin & Baker 1976)(Pl. Path. 25: 108).
- The disease has caused significant losses for commercial growers in recent years, especially in perennial varieties.
- During 2010-13 isolates were obtained from symptomatic plants on a number of different nurseries and during testing of imported cutting material.
- Several papers have reported that Xanthomonas campestris strains from wallflowers are not pathogenic to Brassica spp. and may represent a distinct pathovar.

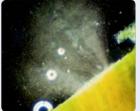


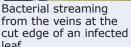
Symptoms and pathogenicity





Symptoms can be vague and variable: affected leaves often have one-sided chlorosis, or chlorotic tips, before becoming necrotic; infected plants may be stunted, readily shed their lower leaves and are short-lived.









Pathogenicity of wallflower isolate 9218 on cabbage (Wirosa, left) and wallflower (Persian Carpet, right).

NCPPB 937 (type strain of pv. incanae) was non-pathogenic on wallflower and brassica differentials.

Race typing

- Isolates were inoculated into differentials as described by Jensen et al. (2010)(Pl. Dis. 94: 298).
- Most (16) isolates gave reactions consistent with race 6, with one race 5, and one race 9.
- Six isolates gave a novel reaction pattern (designated race 12, see table).





Isolate 9622, race 6. Isolate 9669, novel race 12. Order as in table, plus wallflower Persian Carpet at the end.

Race*	Wir	Cob60	STT	Bo99	FBLM2	Mir	SxD1
1	+	+	+	-	-	+	+
2	+	+	ı	+	+	-	-
3	+	+	+	-	-	-	-
4	+	-	V	-	-	+	+
5	+	+	٧	+	V	-	-
6	+	+	+	+	+	+	+
7	+	+	+	+	ı	+	+
8	+	+	1	-	1	1	-
9	+	-	-	-	-	-	-
10	+	+	-	+	-	+	+
11	+	+	ı	+	+	+	+
12 [†]	+	-	-	+	-	+	+

^{*} Phytopath. 91: 492; Plant Path. 56: 805; J. Plant Path. 99: 403. † New.

Discussion

- Pathogenicity and race-typing clearly indicate that strains of X. campestris that cause vascular wilt/blight on Erysimum spp. are pathogenic on Brassica spp. and should be included in X. c. pv. campestris.
- Wallflower strains were often less aggressive on Wirosa than brassica strains. Wirosa may not be the best 'universal suscept'.
- Previous conclusions about lack of pathogenicity may be the result of using attenuated cultures/strains.



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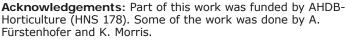












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