SHORT COMMUNICATION

Institute of Plant Protection, Poznań, Poland

UNCOMMON APPLICATION OF VEGETATIVE COMPATIBILITY TESTERS

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Key words: VCG testers, *Verticillium dahliae, Gliocladium roseum*

In 1996 a study of vegetative compatibility groups (VCGs) in a group of 28 *Verticillium dahliae* isolates from woody host trees in The Netherlands was carried out. Most of the isolates (25) could be placed into two VCGs: NL-I and NL-II after forming strong heterokaryons with selected group testers (Hiemstra and Rataj-Guranowska 2003). Self-compatible isolate No. 26 could not be assigned to either of them, as it did not complement with any of the isolates. Moreover, two isolates – No. 5 and No. 20, were special within the group studied. These two isolates looked differently from *V. dahliae* isolates. Older cultures grown on PDA had orange coloured mycelium, however, their conidiophores and conidia were similar to those of *V. dahliae*. Both of them were isolated from the stems of trees infected by *Verticillium*: No. 5 from *Acer palmatum* and No. 20 from *Fraxinus excelsior*.

We were able to recover several colourless *nit* mutants from both isolates but they were self-incompatible. Then we attempted to force formation of heterokaryons with *nit*-mutants of two orange isolates and the selected groups NL-I and NL-II testers with negative results. However, after time consuming pairing with all the isolates studied we were able to observe complementation with single tester-isolates in both cases. Isolate No. 5 formed very delicate heterokaryon with isolate No. 17 (from ash) and isolate No. 20 formed not very distinct heterokaryon after pairing with isolate No. 9 (from *A. palmatum*). Finally, we decided not to include both strange isolates to NL-I group, considering that single heterokaryons with representatives of NL-I group were very weak.

In 1998 we tried to prepare the single-spored cultures from the Dutch orange isolates. In both cases the procedure was not successful, resulted in a mixture of two species; slowly growing isolates of *V. dahliae* and faster in growth isolates of *Gliocladium roseum* (now *Clonostachys rosea*). Obviously the VCGs testers of NL-I and NL-II selected in The Netherlands were strong enough to detect *V. dahliae* in probable mixtures of two species. It seems this was the first record of unusual application of VCG testers as detectors of a species in a mixture of them.

Phytopathol. Pol. 47: 63–64
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ISSN 1230-0462

After several years, in 1999, we also isolated an orange isolate from *Juniperus communis* in Poland, a plant showing symptoms of Verticillium wilt disease (unpublished results). We did not isolated *V. dahliae* from the plant, and such a result was at that time to be expected as *V. dahliae* has never been isolated from *J. vulgaris*. However, we isolated *G. roseum* and considered this species a possible secondary invader. We thought also of the possibility that the primary invader was overlapped by *G. roseum in vitro*. We did not suspect that *G. roseum* could be the primary pathogen and cause similar symptoms as wilt-disease pathogens.

It was known from the literature that *G. roseum* can be antagonistic to *V. dahliae* and several pathogenic species, like *Phomopsis rotioides* (Moody and Gindrat 1977), *Rhizoctonia solani* (Tarantino et al. 2007), *Phytophthora palmivora* (Lim and Chan 1986), *V. dahliae* and other. As a result of those observations *G. roseum* has been considered to be a saprotroph used as biological control agent (Papavizas 1985). However, in 1991 Theron and Holz reported for the first time that *G. roseum* caused dry rot of potato tubers with typical Fusarium dry rot lesions. In the light of this information the presence of *G. roseum* inside each plant should be assumed more carefully. It might protect some species of plants, but it can be a secondary pathogen, and finally might also be a primary pathogen for other plant species. One can imagine that *nit*-mutants would be helpful in considering of the function of the fungus in the plant. It is possible in non expensive way to trace the pathogen (the pathogens) during plant vegetation period and to assume which microorganism was the single or primary (secondary) invader.

Literature

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Accepted for publication: 29.03.2008