PATHOGENICITY VARIATIONS OF THREE PATHOGENS OF TOMATO AND COTTON : *VERTICILLIUM DAHLIAE* KLEBAHN, *FUSARIUM OXYSPORUM F.SP. LYCOPERCISI* (SACC.) SNYD. and HANS. AND *F.OXYSPORUM F.SP. VASINFECTUM* (ATK.) SNYD. and HANS.

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BACKGROUND AND OBJECTIVES

In repeated standard inoculations, V. *dahliae* and different formae speciales of *F. oxysporum* did not always have the same behaviour ; symptoms sometimes very apparent were otherwise attenuated or even absent. These results suggest a potential variability of pathogenicity in these species.

The objectives of this study were to test possible variations of pathogenicity between clones and in the descendance of clones in two species, *V. dahliae* and *F. oxysporum*, causal agents of vascular diseases of tomato and cotton.

MATERIALS AND METHODS

Inoculations were made by dipping roots of 2 week-old seedlings of tomato and cotton in spore suspensions (adjusted at 10 sp/ml) obtained from 4 day-old cultures on PDA (Lahlou et Boisson, 1984).

Three types of cultures were used in these experiments :
- subcultures of increasing age issued from a clone (monospore culture) by mycelial transfers.
- subcultures obtained by monospore culture from an aging clone.
- cultures obtained by weekly mycelial transfers from the margin of the initial clone thallus.

Symptoms were estimated two and three weeks after inoculation :

- stunting of plants
- chlorosis, necrosis or wilt of leaves
- browning or blackening of xylem vessels in the stem
- presence of living fungus in the xylem (tested by reisolation from inoculated plants).

RESULTS AND CONCLUSIONS

V. dahliae - Tomato (Lahlou et Boisson , 1984 - Hadisutrisno et Boisson, 1986)

Large differences in pathogenicity were observed between subcultures of the same clone at different ages and between subclones issued by monospore isolates from the same clone. This variability concerned both virulence and agressivity : subclones of one clone may be highly or weakly pathogenic. We observed transformation of race 1 to race 2 and reversion from race 2 to race 1.

However, hyalin variants or *V.dahliae,* which were abundant in descendance of old cultures, were very stable in their pathogenicity. This new material is very interesting for further studies in physio-or histopathology and for the plant breeder.

F. oxysporum f.sp. *lycopercisi* - Tomato

In all inoculation tests, the two isolates used (originating from France and Algeria always showed the same pathogenicity on two varieties of tomato : Supermarmande (susceptible to fusariosis) and Marmande RF (resistant to fusariosis). Large variability appeared in the morphology but it had no relation with pathogenicity.

F. oxysporum f.sp. *vasinfectum* - Cotton (SOUOP, 1987 - ASSIGBETSE, 1988, 1989).

The same results were obtained with isolates of *F. oxysporum* f.sp. *vasinfectum* originating from Ivory Coast, Centrafrican Republic and Paraguay : the pathogenicity on susceptible cotton was always high. However, two non-pathogenic subclones appeared three years ago, in the centrafrican Republic originating isolate. They were subcultured by mycelial transfers and monospore isolation and periodically inoculated to cotton. During this prolonged study, the pathogenicity appeared sometimes very high and sometimes very low without apparent rule.

In conclusion, the pathogenicity of *V. dahliae* is demonstrated to be very variable. Opposite to this result, the pathogenicity of the two formae speciales of *F. oxysporum* used in our study seemed very stable except for two clones of *F. oxysporum* f.sp. *vasinfectum.* These results have perhaps to be compared to the specificity of the three pathogens? *V. dahliae* is ubiquist and able to attack many different plants. *F. oxysporum* f.sp. *vasinfectum* which is normally pathogen on cotton and okra (*Hibiscus esculentus*) can occasionally in field, attack *Medicago sativa* and tobacco (*Nicotiana tabaccum*). *F. oxysporum* f.sp. *lycopercisi* is pathogenic only to tomato.

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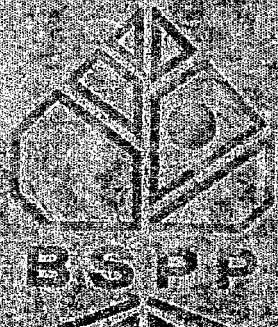

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PROGRAMME & ABSTRACTS

University of Wales, Swansea 16–18 April 1991

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16-18 April 1991

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