

EVALUATION OF VARIABILITY IN NEMATODES *GLOBODERA ROSTOCHIENSIS* AND *G. PALLIDA* BY MEANS OF RAPD METHOD

Hodnocení variability háďátek *Globodera rostochiensis* a *G. pallida* s využitím metody RAPD

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Souhrn, klíčová slova

Metoda RAPD (Random Amplified Polymorphic DNA) je vhodný postup pro studium variability patotypů háďátek rodu *Globodera*. V tomto příspěvku je prezentována RAPD analýza, která umožnila odlišit Ro1, Ro2, Ro4 a Ro5 patotypy *G. rostochiensis* a Pa2 a Pa3 patotypy *G. pallida*. Současně byly analyzovány dvě neznámé populace pocházející z České republiky. Metodou RAPD byla jedna z neznámých populací označena jako směs patotypů Ro2 a Ro3. Druhá neznámá populace byla identifikována jako patotyp Pa2.

Globodera rostochiensis, *Globodera pallida*, *Solanum tuberosum*, patotypy, DNA, RAPD

Summary, keywords

RAPD (Random Amplified Polymorphic DNA) is useful method of study of variable in *Globodera* species populations. This paper presents RAPD analysis that distinguished Ro1, Ro2, Ro4 a Ro5 pathotypes of *G. rostochiensis* and Pa2 and Pa3 pathotypes of *G. pallida*. Simultaneously were two unknown populations (origin Czech Republic) analysed. The first of these populations was as pathotype Ro2-Ro3 mixture, the second one as Pa2 pathotype identified

Globodera rostochiensis, *Globodera pallida*, *Solanum tuberosum*, pathotypes, DNA, RAPD

Introduction

Potato cyst nematodes (*Globodera rostochiensis* and *G. pallida*) are quarantine pests of potato (list-A2, EPPO) (SMITH *et al.*, 1992). Species are identified by morphological cultivation and biochemical methods.

RAPD (Random Amplified Polymorphic DNA) is useful method for study of PCN variable at level of species and pathotype. For distinguishing of pathotypes of *G. rostochiensis* and *G. pallida* for example BLOK *et al.* (1997) and BENDEZU *et al.* (1998) used.

Methods

There were used cysts of pathotypes Ro1, Ro2, Ro4, Ro5 of *G. rostochiensis*, Pa2 and Pa3 pathotypes *G. pallida* and cysts of unknown Czech populations (X and Y) for analyses. DNA was isolated of individual cysts according to SEDLÁK (2001).

For RAPD were decameric primers OPA07, OPG03, OPG05, OPG08, OPG10 and OPG13 used. Conditions of amplification and electrophoretic separation SEDLÁK (2001) describes. There were selected polymorphic bands of all elektroforetic diagrams. Genetic similarity was determined by Dices coefficient of similarity by Gel Manager for Windows. There was method of evaluation according to Vejl (1998). Coefficients of similarity were used to dendrogram compilation.

Results - discussion

Figure 1 presents paradigmatic electrophoretic diagram after using of primer OPA07. At figure 2 is dendrogram that characterises propinquity among PCN pathotypes after using of all mentioned primers. After statistical evaluation is possible to say, that the similarity between *G. rostochiensis* and *G. pallida* was only 15 per cent. Unknown population X was by RAPD identified as high probably mixture of pathotypes Ro2 and Ro3. Unknown population Y was identified as Pa2. Individual pathotypes proved different variable into populations. Similar strate-

gy for description of variable of PCN populations for example BLOK *et al.* (1997) and BENDEZU *et al.* (1998) used.

Figure 1: RAPD marker (OPA07) in tested PCN populations

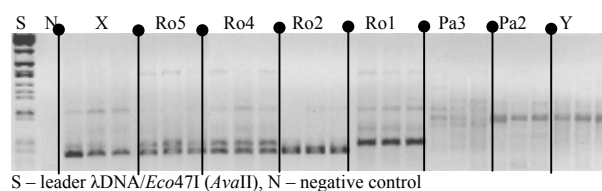
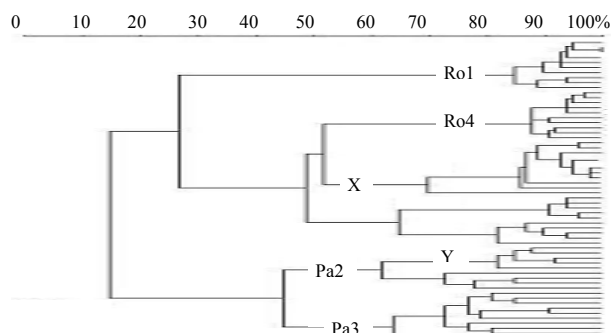


Figure 2: Dendrogram for genetic distance evaluation between PCN pathotypes



References

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