
Poster

Pflanzenschutz in den Tropen/Subtropen

105 - Biocontrol of the root-knot nematode *Meloidogyne incognita* in Kenyan tomato varieties using habitat-adapted endophytes

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Plant parasitic nematodes, especially root-knot nematodes, pose a major threat to the increasingly important tomato production in the coastal humid tropics of East Africa. Tomato endophytes collected from Kenya were identified and screened for their biocontrol activities in the tomato cultivar moneymaker, various local Kenyan varieties and AVRDC accessions. In particular, *Trichoderma* and *Fusarium oxysporum* isolates could significantly reduce root-knot nematode egg densities when compared to the non-inoculated control. Split-root experiments and synchronized infection studies have shown that the fungus initiates certain systemic plant defense responses that affect both penetration and overall development of the nematode. In order to gain a deeper understanding of the induced defense responses leading to this reduction in nematode infection, specific tomato mutants that are impaired in particular defense pathways are analyzed with respect to root-knot nematode colonization in the presence and absence of the beneficial endophytes. At the same time, the expression of several marker genes and the activity of certain enzymes, all involved in the various induced defense responses, are being monitored. In addition, the effects of fungal metabolites on *M. incognita* and the initiation of defense responses is being studied. The use of habitat-adapted endophytic fungi may provide a safe, efficient, reliable and affordable approach to control root-knot nematodes.

106 - Environmental Considerations in Crop Protection Research

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In Sudan high crop losses are encountered due to the attack by different pests and diseases. Cotton (Main cash crop) is attacked by numerous insect pest complex, e.g. early season pests (Cotton Flea Beetle, The cotton Jassid) Mid season pests (The African bollworm) and late season pests (The cotton whitefly and the cotton aphids). An example of the economic importance of the damage caused by some of these pests was studied and the results showed that the African bollworm could cause 65% shedding of fruits. On the other hand Vegetables crops (e.g. Tomato) are also seriously attacked by various insect pests, e.g. The African bollworm. As a result both the main cash crop (cotton) and the main vegetable food crop (Tomato) are heavily sprayed with insecticides. At Present the main Method to combat insect pest is Chemical Control using pesticides. However this strategy has a negative impact on the environment evident through environmental contamination, development of insecticide resistance, side effects on beneficial and non target organisms. Efforts should focus on an area-wide integrated pest management approach to enhance pest management. This is important for food security, introduction of sustainable agricultural systems, reduce losses and pesticide use and preserve biological diversity. Organic farming is an important approach to environmentally combating agricultural pests. In this approach weeds