128 – Mekete, T.[1]; Kiewnick, S.[1]; Hallmann, J.[2]; Sikora, R.A.[1]
[1] Rheinische Friedrich-Wilhelms-Universität Bonn, INRES–Phytomedizin, Bodenökosysteme und Nematologie
[2] Biologische Bundesanstalt für Land- und Forstwirtschaft, Institut für Nematologie und Wirbeltierkunde

Studies on the communities of endophytic bacteria in coffee (*Coffea arabica* L.) from Ethiopia and their antagonistic potential towards *Meloidogyne incognita*

Endophytic bacteria are ubiquitous in most plant species, residing latently or actively colonizing plant tissue locally or systematically. They can be isolated from surface –disinfested plant tissue or extracted from within the plant, and do not visibly harm the plant. Much of the work with endophytic bacteria has been done with agricultural and horticultural plant species. However, little is known about endophytic bacteria in coffee production systems, which is a commercially important crop in the world. As Ethiopia is the center of origin for coffee, there is a high probability that endophytic bacteria may play an important role in pest and disease control. With this hypothesis, endophytic bacteria were isolated and tested against the root–knot nematode *Meloidogyne incognita*. In 2004, endophytic bacteria were isolated from surface–disinfested roots of coffee. Accordingly, taxonomic identities of 201 bacterial isolates belonging to 43 genera were isolated and identified by the MIDI system. Of these 201 isolates, 115 (57%) were identified with a similarity index (SI) of >0.2 and a further 56 isolates (27.9 %) with SI <0.2 which indicates a tentative identification. Thirty isolates (14.9 %) could not be identified by the MIDI system (No match & unidentified). This is the first survey of the endophytic bacterial diversity from various coffeee agroecologies of Ethiopian coffee. Bacterial metabolites of 40 isolates were tested against the root–knot nematode *Meloidogyne incognita*. Of these, and may be coffee in general. 12 isolates showed high relative juvenile mortality (38 – 75%) compared to the control. These isolates were: *Agrobacterium radiobacter*, *Bacillus pumillus*, *B. brevis*, *B. megaterium*, *B. mycoides*, *Cedecea davisae*, *Chryseobacterium balustinum*, *Cytophaga johnsonae*, *Lactobacillus paracasei*, *Micrococcus luteus*, *Pseudomonas syringae* and *Stenotrophomonas maltophilia*. These *in vivo* investigations will be continued to select elite isolates for biological control purposes and for in vivo testing.