

Characterisation of responses of tomato (*Solanum lycopersicum*) genotypes to root-knot nematode (*Meloidogyne incognita*)

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Tomato (*Solanum lycopersicum* L.) is an important staple in the diet of Ghanaian food. However, tomato yields are limited by the nematode *Meloidogyne incognita*. In an incompatible interaction involving resistant cultivars, a hypersensitive response (HR) is accompanied by rapid reprogramming of cells and physiological changes which generates ion fluxes, oxidative burst and reactive oxygen species. In order to develop new control measures, the molecular mechanisms underlying the plant defense responses against *M. incognita* needs to be elucidated. Our objective is to understand tomato-*M. incognita* interactions in the context of expressed genes and signaling pathways, and comparative defense responses among tomato species. A split-root technique involving half of the root system inoculated with juveniles of *M. incognita* was utilized, and roots harvested 5 and 21 days after inoculation (dai). The 18S (nematode-specific primer, UI416988(*Jasmonic*-specific primer), ACS2 (Ethylene-specific primer), PR1 (Pathogenesis-related gene-1 for salicylic acid) and Ubiquitin-Ubi3 (House-keeping gene) were used in quantitative RTPCR to comparatively determine the expression of ethylene, salicylic acid, and jasmonic acid-regulated marker genes. Results indicate positive relative expression of all genes, and inoculated portions of roots had higher expression compared to the un-inoculated root portions for the two time points.

Biography

Seloame Tatu Nyaku's research interest is in the area of genomics with research emphasis on animal, plant, and microbial sequencing. He has tremendous research experience working on nematode-plant interactions, some of his accomplishments include DNA fingerprinting of reniform nematode populations of 18S and ITS1 rRNA regions, reniform nematode Genome, Expressed Sequence Tag (EST), MicroRNA library development, sequencing, analysis and annotation. Dr. Nyaku also has expertise in designing Real-Time PCR assays, and analyzing whole genome, transcriptome, and population genomics data. Dr. Nyaku is currently a Lecturer in the Department of Crop Science, College of Basic and Applied Sciences, University of Ghana.

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