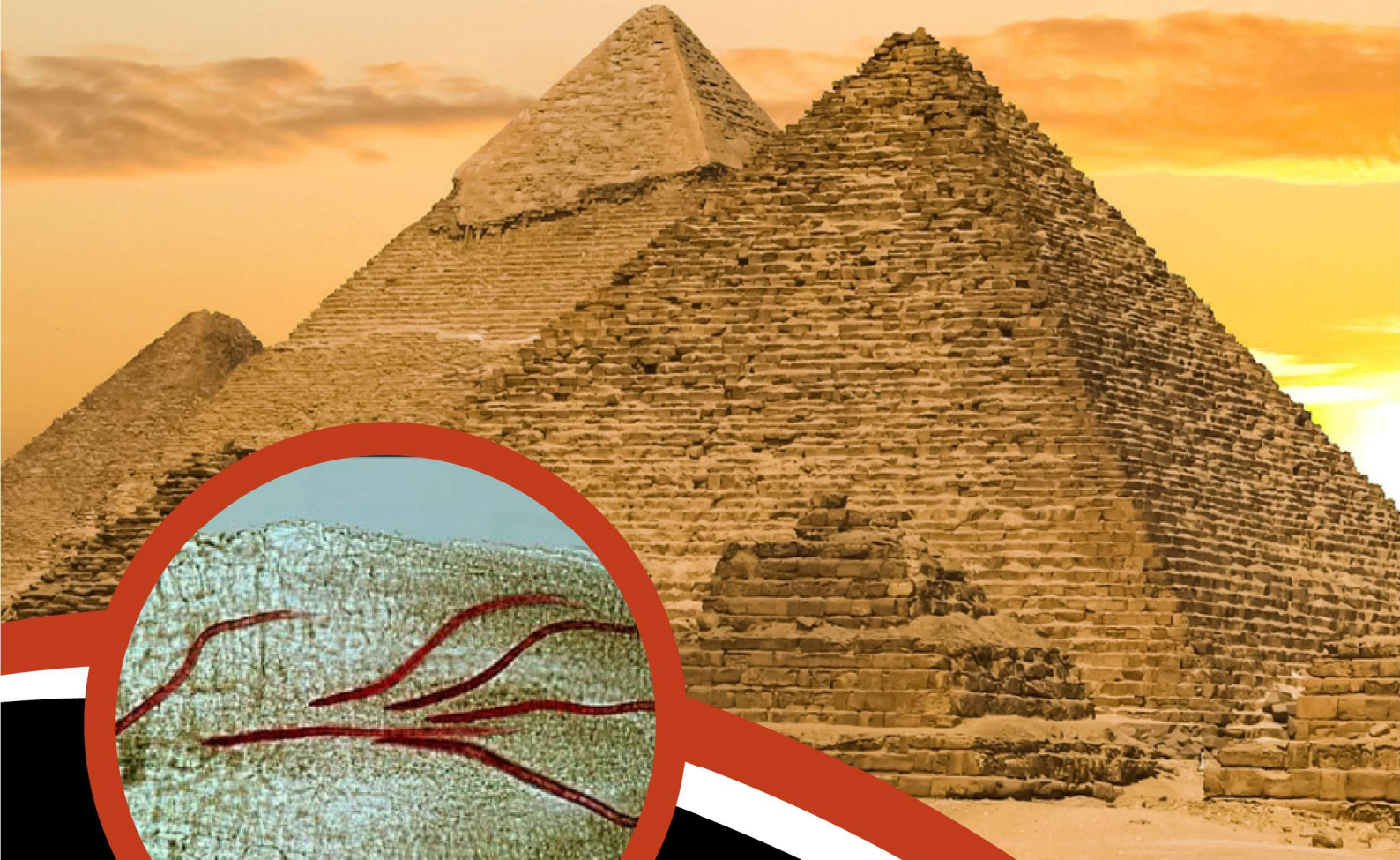
THE ORGANIZATION OF NEMATOLOGISTS OF TROPICAL AMERICA



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the differentially expressed genes and the metabolic pathways involved. Previous studies have shown an efficient nematicidal effect of this metabolite against PWN. Nematode transcriptomic analysis revealed an up-regulation in the expression of cytochrome P450s, UDP-glucuronosyl/UDP-glucosyltransferase and nuclear hormone receptors genes involved in the xenobiotic's biodegradation metabolic pathway. The transcriptomic analysis unveiled a down-regulation effect in the expression of collagen coding genes, which may indicate the modification of the nematode' cuticle as a reaction to the direct contact to the nematicide. This research will help to understand the mode of action of this nematicide function at a molecular level providing new targets for nematode control.

48 PENETRATION AND DEVELOPMENT OF *Meloidogyne graminis* ON BERMUDAGRASS COMPARED TO TOMATO [PENETRACIÓN Y DESARROLO DE *Meloidogyne graminis* EN CÉSPED BERMUDA COMPARADO CON TOMATE]. **M. L. Mendes**, D. W. Dickson and W. T. Crow. Entomology and Nematology Department, University of Florida, Gainesville, FL United States. wtcr@ufl.edu.

Meloidogyne graminis parasitizes a wide range of grasses in the United States and elsewhere. The optimum temperature for the nematode's penetration and development on grasses is reported as 28 °C. Although the host range of *M. graminis* appears to be restricted to grasses, the nematode's ability to infect certain other plant species, namely tomato, is unknown. Our objectives were to determine the developmental cycle of *M. graminis* on bermudagrass at 25 °C and 28 °C and whether it penetrated and developed in tomato roots. The experiment was conducted in environmentally controlled chambers with artificial light. Four-week-old 'Rutgers' tomato seedlings and sprigged 'Tifway' bermudagrass (*Cynodon dactylon* × *C. transvaalensis*) were transferred to 470 cm^3 styrofoam cups containing pasteurized sand, fertilized with 50 mL solution of Miracle-Gro (20-20-20 + micronutrients), and maintained in the greenhouse for 7 days. After this period, the plants were inoculated with 250 freshly hatched second-stage juveniles (J2) of *M. graminis* per plant and placed in the chambers. The penetration and development were determined by sequential sampling two plants of each temperature treatment starting 24 h and 48 h after inoculation and then at 2-day intervals for 20 days. The roots were stained and observed for the presence of J2 under a binocular microscope. On bermudagrass, the highest J2 number penetrating roots was at 48 h after inoculation at 28 °C and 96 h at 25 °C. Some immature females and males were observed 10 DAI (days after inoculation) at 28 °C and 12 DAI at 25 °C. Adults, egg laying females, and males (50:50) were observed 14 DAI at 28 °C and 16 DAI at 25 °C. Numerous J2 were observed 20 DAI at 28 °C indicating a second generation. On tomato, only one J2 was observed inside roots 24 h and 48 h after inoculation both at 25 °C and 28 °C. These results suggest that tomato is not a host for *M. graminis*.

49 PURPEST: CHEMICAL PROFILE OF THE PINEWOOD NEMATODE FOR RAPID DETECTION [PURPEST: PERFIL QUÍMICO DEL NEMATODO DE LA MADERA DEL PINO PARA UN DIAGNÓSTICO RÁPIDO]. **D. Pires**(1,2), J.M.S. Faria(1,2), M.L. Inácio(1,3). (1)National Institute of Agrarian and Veterinary Research, Oeiras, Portugal, (2)Mediterranean Institute for Agriculture, Environment and Development, University of Evora, Mitra, Evora, Portugal, (3)GREEN-IT Bioresources for Sustainability, Institute of Chemical and Biological Technology, Nova University of Lisbon, Oeiras, Portugal. david.pires@iniav.pt

The pinewood nematode (PWN), *Bursaphelenchus xylophilus*, is a quarantine pest and the causal agent of pine wilt disease (PWD), a major phytosanitary concern that is ravaging native pine trees in Asia and Europe, having also been detected in Mexico. Management of PWD involves strict regulations and heavy contingency plans, resulting in the felling, removal, and destruction of infected trees, having serious economic and ecological impacts. Regular monitoring of the PWN and its insect vector is the most common strategy to prevent outbreaks of PWD, but introduction and dissemination can eventually occur. Current screening of suspected wood material requires highly trained personnel and can be time consuming. Rapid detection is therefore of utmost importance in preventing the establishment of the nematode. The PURPEST project aims to investigate the volatile organic compound (VOC) signature of *B. xylophilus* using gas chromatography–mass spectrometry. This information will be utilized to optimize sensor components and develop a prototype sensor system. This technology will then be validated in the field and at import control sites and will enhance pest management strategies by enabling early diagnosis of PWD and improving inspection rates for pine stands and woody material imports. The non-invasive, reliable, and high throughput methodology employed by PURPEST will help prevent the spread of PWD to new forestry areas. PURPEST is co-funded by the EU through grant agreement 101060634.