biomass was removed by centrifugation and filtration. Nematode egg hatch in the filtrates was 2% to 224% of hatch in PDB controls. Juvenile mobility was inhibited by few of the filtrates. Active compounds were identified from two fungi. The compounds from Fusarium equiseti were the trichothecenes 1,15-diacyethylvalenol and diaceotoxyscirpenol; trichothecenes are toxic to a number of organisms. The active agent from Chaetomium globosum was flavipin. These three compounds have previously been isolated from fungi, but this is their first reported activity against plant-parasitic nematodes. Flavipin solutions were applied at 0, 30, 60, and 120 micrograms/ml to Cucumis melo plants in greenhouse studies with M. incognita. The treatments did not suppress gall formation nor egg and J2 numbers.

Using soil electrical conductivity to predict the distribution of cotton nematodes. J. D. MUELLER (1), A. Khalilian (2), F. J. Wolak (2), and Y. Han (2). (1) Dept. Plant Pathology and Physiology, Clemson Univ.; (2) Agricultural and Biological Engineering Dept., Clemson Univ. Phytopathology 91:S139. Publication no. P-2001-0076-SON.

The limiting factor in developing variable rate nematicide applications is determining the distribution of the target nematode species in a field. Intensive grid sampling is cost-prohibitive. Use of soil electrical conductivity (SEC) to measure soil texture and predict the distribution of three nematode species was very successful in a 10-acre loamy sand field in Barnwell County, SC. SEC had a positive correlation (0.92) with percentage clay and a negative correlation (0.91) with percentage sand. At-planting and harvest soil samples showed distinct distribution patterns for three nematode species when SEC (mS/M) was divided into four ranges. Recovery of Hoplolaimus curvispira decreased as SEC increased. An increase in soil clay content of 9% resulted in a 57% reduction in H. curvispira density. This technology may allow estimation of the distribution by soil type of selected nematode species and variable rate nematicide application to those sites in a cost-effective manner.


The systematic position of Campydiorea Cobb, 1920, which possesses many unique morphological features (especially in esophageal structure and stomatic armature) has long been a matter of controversy. Thorne (1939) remarked that the “position of the Campydiorean” (containing only Campydiorea) was questionable. Jairajpuri (1983) reviewed the morphology of C. demonstrans Cobb, 1920 (sole species of Campydiorea) and concluded that the species was assigned to the monotypic suborder, Campydiorea, in the order Dorylaimida. This placement of Campydiorea was unaltered in Jairajpuri and Ahmad’s 1992 text on the Dorylaimida. Phylogenetic analysis of DNA sequences generated from the 18s small subunit ribosomal DNA, 16s ribosomal DNA, and the rRNA operon demonstrated maximum likelihood, reveals that Campydiorea shares more recent common ancestry with genera such as Alaimus, Amphidelus (Alaimida), Tripyla and Ironus (Tripylida) than with any members of Dorylaimida or Triplonchida. Taxonomic placement of the genus Campydiorea, and the identity of its closest living relatives, is in need of further investigation.

Nematodes in wetland soils of North Carolina. D. A. NEHER (1), M. E. Barbercheck (2), O. Anas (2), and S. El-Allaf (2). (1) University of Toledo; (2) North Carolina State University. Phytopathology 91:S139. Publication no. P-2001-0078-SON.

Nematodes were identified to family from 500-ml samples collected 13 times in 1994-95 from an ephemeral saturated, pine wetland in each Jones (J), Lincoln (L), and Nash (N) counties. Soils were hydric, acidic (mean pH 3.32, 4.92, and 4.69), and rich in organic matter (mean 41.6, 1.9, and 8.4%). Total abundances were greatest in spring and fall months, dominated mostly by bacterivores and plant-parasites. Most common bacterivores included Cephalobidae, Rhabditidae, Pristomatoaimidae, Alaimidae and Plectidae. Abundances of plant-parasites were greatest in Tylenchidae, Hoplolaimidae, Criconematidae and Tylusidae. Most numerous among fungivores were Aphelenchus, Diphtherophorididae and Apleplanchnidae. Dorylaimidae and Melolonthidae were the most abundant omnivores and predators, respectively. Site J differed from the other two sites by containing an undescribed Bastiandia genus, an undescribed Pristomatoaimidae species, and presence of Ogura (Criconematidae), Echydaphora (Tylusidae) and Trophostychus (Tylusidae). This is one of the first reports of nematode communities in wetland soils.


Field populations of H. glycines are given race designations based on the percentage of females that develop on four differentials compared with Lee 64. This system provided critical information to extension and breeding programs when only Peking, PI 88788, and PI 90763 had been used to breed for H. glycines resistance. Cultivars or germplasm lines with four alternative resistance sources have since been registered. These lines, PI 437654, 209332, 89772, and Cloud, differentiate H. glycines populations in discriminant function analysis. We propose an updated system that 1) includes four new differentials, 2) excludes Pickett, and 3) changes the convention of naming populations to allow easier addition of new, properly registered differentials.

Selection and reproduction of Heterodera glycines on resistant soybean germplasm. G. R. NOEL (1), S. J. Bauer (2), M. S. Assunção (3), and N. Tabilalenja (2). (1) USDA, ARS; (2) Dept. of Crop Sciences, Univ. of Illinois; Urbana, IL 61801; and (3) EMBRAPA Goiânia, GO, Brazil. Phytopathology 91:S139. Publication no. P-2001-0080-SON.

Populations of H. glycines races 1-6, 9, and 14 were selected for 2 years on soybean lines Cloud, P188.788, P198.772, P1007.63, and P1029.3. Each soybean line was inoculated with each of the selected populations to determine which resistant germplasm might be used in gene deployment to H. glycines. A particular interest was the population on P188.788, since it is the source of resistance for ca. 95% of resistant cultivars grown in the Midwest. Populations of each race selected on P188.788 and then challenged with P198.722 resulted in a female index (FI) = 0 or 1 except for race 4 for which FI = 19. Similar results were obtained with P1007.63 and Peking, except that FI for race 4 was greater on P1007.63 and less on Peking, than on P198.722. Cloud and P1029.3 were similar for all populations selected on P188.788 with FI ranging from 12 to 68. When inoculated onto the source on which selected, a general resistance was observed except for Cloud. It was the only source of resistance for which selection resulted in an FI equal to susceptible ‘Lee 74’.

Establishing a Prunus rootstock evaluation site on land with no history of short life or peach production. A. P. NENZEPIR, W. R. Okie, and T. G. Beckham. SE Fruit & Tree Nut Research Laboratory, USDA-ARS, Byron, GA 31008. Phytopathology 91:S139. Publication no. P-2001-0081-SON.

Peach tree short life (PTSL) is associated with the presence of ring nematode, Mesorhabditis xenoplax (Mx), and poor management practices. Finding a non-commercial field site to evaluate rootstocks for PTSL resistance is increasingly difficult. To determine the time needed to create a PTSL test site was investigated. In 1994, a site not planted with peaches for >80 years was identified in Byron, GA. Preplant nematode soil samples revealed no Mx. One third of the land was planted to peach and infested with Mx in spring 1994 (P2) and another third in spring 1995 (P1). The remaining third of the land received no trees or Mx and served as the untreated control. In winter 1995, trees were removed from P1 and P2 and all treatments were replanted to peach in 1996. In 1997, PTSL tree death only occurred in P2 (7%). By 2000, PTSL tree death reached 41% in P2, 16% in P1, and 4% in the control. Nematode populations were greatest (P < 0.05) in P1 (649 Mx/100 cc soil) and P2 (300 Mx/100 cc soil) and lowest in the control (221 Mx/100 cc soil). Evaluating a PTSL screening site is possible after three years.

Evaluation of Baermann funnel extraction for nematode community study. H. OKADA. Tohoku National Agricultural Experiment Station. Phytopathology 91:S139. Publication no. P-2001-0082-SON.

To examine availability of Baermann funnel extraction for nematode community study, nematodes were extracted by Baermann funnel (BF) and sieving + centrifuge (SC) from soils of three sites: tilled (T) and non tilled (N) crop fields, and a forest (F). Density of each nematode taxon was estimated to calculate diversity (Hd) and C (MI and PPI) indices in each sample, and the indices were compared with regard to extraction method and study site. The nematode numbers were significantly larger in samples extracted by BF than by SC. The nematode density was significantly higher in F than in T or N. The study sites were used for community indices as follows: P÷T=N in both BF and SC extractions for MI; T=N>F in BF but T>F=N in SC for PPI; F>T=N in both BF and SC for (I); N>T=F in BF but N>F>T in SC for H2. In conclusion, BF may be a useful method same as SC in revealing differences in nematode communities at least between T and N.