



# Nematology News

## ESN Braga: 28th August - 1st September 2016



ESN 2016 will take place at The University of Minho, Braga, Portugal (<http://www.uminho.pt/>). The main campus building will host the posters (which will be available for the full meeting), tea and coffee breaks and the trade stands as well as parallel sessions in four adjoining lecture theatres. This venue will be the focal point for the meeting and is a 10 minute walk from the official hotel of the symposium.

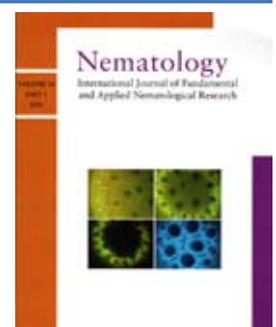
Braga, with over 175,000 inhabitants, is one of the oldest cities in Portugal and is located in the North of the country approximately 30 Km from the sea. It is close to the mountains of the Minho Region and very near to the National Park of Peneda-Gerês. Braga is 40 Km from Oporto international airport. This is served by many international airlines, including budget airlines. Options for travelling between Oporto and Braga include train, bus or taxi. Further information, including details of bursaries for ESN student members, will be provided in the next edition of this newsletter.



### Discounted subscription to *Nematology* for ESN members

Members are reminded that they can subscribe to the 2015 Volume of *Nematology* at the special individual e-only member subscription rate of EUR 125 (excluding VAT). Please send your order to [brill@turpin-distribution.com](mailto:brill@turpin-distribution.com), quoting action code 70110.

*Highlights from recent Nematology issues can be found on pages 4-6*



## News from ESN members

Manuel Mota and colleagues have welcomed a new postdoc into the group at Evora - Carlos Guitiérrez-Gutiérrez (pictured). Carlos, originally from Sevilla, comes from Córdoba where he did his PhD on Longidorids under Pablo Castillo and Juan Emilio Palomares. He will be based in the lab for a minimum of 3 years, picking up research on virus vector nematodes on grapevines under the general heading “Molecular and biological approaches to understand the species complex of plant parasitic nematodes associated with grapevine decline in Portugal”. This will initially be work based on genetic diversity, phylogeny, biogeography and virus transmission but may later include research on plant-nematode interactions in these groups. Carlos has also had experience in South America, working in Ecuador between 2013 and 2014, for the Ministry of Agriculture, and studying various plant parasitic nematodes.



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## Plant Health for Sustainable Agriculture Conference Ljubljana, Slovenia, 11 – 12. May 2015



The Agricultural Institute of Slovenia is organizing an international conference “Plant health for sustainable agriculture” that will bring together leading researchers, stakeholders and policy makers from the field of Sustainable Agriculture in Ljubljana, Slovenia (11–12 May 2015). The conference will also include presentations from the field of nematology as well.

Please visit the conference web page for the provisional conference program, registration, abstract submission and other information ([www.phsa-conference.com](http://www.phsa-conference.com)). Registration for conference participation is open until February 28th 2015. There is no registration fee as this conference is organised in the framework of the FP7 project CROPSUSTAIN ([www.cropsustain.si](http://www.cropsustain.si)).

*Barbara Geric Stare*

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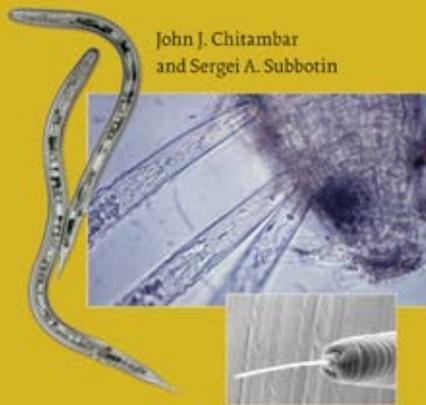
## Book review

CHITAMBER, J.J. & SUBBOTIN, S.A. Systematics of the Sheath Nematodes of the Superfamily Hemicyclophoroidea. Nematology Monographs and Perspectives, Volume 10. Series Editors: David J. Hunt & Roland N. Perry) Leiden-Boston, Brill, 2014, 732pp. ESN 9789004184657. Price: €199; \$ 273.

This Monograph of the superfamily Hemicyclophoroidea is another very useful high quality contribution within the series *Nematology Monographs and Perspectives*. It gives an extensive overview of all aspects of the superfamily in fourteen chapters with focus on a compilation of all species descriptions. Chapter 1 deals with the Systematics of the superfamily Hemicyclophoroidea, providing a good taxonomic history. The authors follow the classification proposed by Siddiqi (2000) with two families Hemicyclophoridae and Caloosiidae with the exception of *Colbranium*, *Aulosphora* and *Loofia* being considered as junior synonyms of *Hemicyclophora*. In their taxonomic history, they highlight the difference in opinions prior to Siddiqi (2002) but did not refer to Andrassy (2007) who believed that all taxa should be grouped under a single family Hemicyclophoridae with two subfamilies Hemicyclophorinae and Caloosiinae and still accept *Aulosphora* and *Colbranium* as valid genera. The first chapter also includes a classification, the diagnosis of the superfamily and an identification key to the families of Hemicyclophoroidea. Chapter 2 describes the

## Systematics of the Sheath Nematodes of the Superfamily Hemicycliophoroidea

John J. Chitambar  
and Sergei A. Subbotin



Series Editors: David J. Hunt and Roland N. Perry

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morphology of the group with special attention to body shape and contour, body cuticle, labial region, amphidial apertures, stylet, pharynx, dorsal gland orifice, hemizonid, excretory pore, intestine, reproductive system, tail and dimensions for morphological identification. It is in my opinion the least strong chapter of the book with some less precise drawings and terminology. It is followed by a chapter 3 on Biology, chapter 4 on Ecology and chapter 5 on Phylogenetic relationships. Apparently, there is little interest in the biological aspects of the group or its impact as possible pest organisms; most references date from the 1960s–1990s. The chapter on ecology describes the vast distribution of *Hemicycliophora* species, indicating the number of species per continent though without details apart from a list of *Hemicycliophora* species with a distribution restricted to a single country. The genera *Caloosia* and *Hemicaloosia* are less speciose and limited in their global distribution. Some information on the habitat of these obligate ectoparasitic nematodes is included. Chapter 5 describes the classification of the Hemicycliophoroidea and relationships within and illustrated it by a Bayesian 50% majority rule consensus tree from D2-D3 expansion fragment of 28S rDNA gene. *Hemicycliophora* appears as a clade with several subclades, showing a ‘poorly’ resolved relationship between *Caloosia* and *Hemicaloosia* which are based on a single sequence each. Among the *Hemicycliophora* species on the tree, none belonged to the former *Caloosia* or *Colbranium* genera and so

no additional support could be provided for the synonymization of these genera. Chapter 6 describes the molecular methods used for identification of sheath nematodes.

The systematics of the family Hemicycliophoridae is dealt with in chapter 7 and that of its most diverse genus *Hemicycliophora* in chapter 8. The latter provides a valuable list of valid species with their synonyms, a list of species *inquirendae* and a list of species names transferred to other genera. The authors made an interesting attempt to provide a useful polytomous identification key for the identification of the 132 species, mainly based on females and using the means of morphometric values. The definitions of the codes and states of morphological and morphometric features used in the key are clear and illustrated. The primary important feature in the key is the shape of the tail or posterior body region; the order of importance for differentiation species of the other features is not explained. An additional dichotomous key to the species of *Hemicycliophora* is also included.

Chapter 11 constitutes the main part of the monograph. Pragmatically, it is the most interesting and useful part of the book. It must have been a tremendous task for the authors to compile all species descriptions of this species-rich genus. A detailed description of each species is provided together with measurements given separately per population, as well as an overview of known host(s), habitat and localities, information on host-parasite interactions where available, the polytomous key code, relationships and molecular characterization. It is just a pity that the diagnosis or definition of the species is not included. Determining the relationships of a species remains difficult, moreover because comparison occurs between species based on several different populations with those only known from the type population. All species are well illustrated by line drawings, LM and SEM micrographs from the literature. The authors tried to be as complete as possible.

Chapter 12 deals briefly with the systematics of the second family of the Hemicycliophoroidea, the Caloosidae with only two genera, *Caloosia* and *Hemicaloosia* of which the systematics is given in chapter 13 and 14 respectively. Each of these chapters includes a *taxonomic* history of the genus, the diagnosis with species list, a description of the most important morphological features, a key to species and the species descriptions themselves. The species descriptions are presented in a similar clear way and well-illustrated as was done for the Hemicycliophoridae taxa. The book ends with an excellent bibliography and an index of Latin and latinized taxa names for nematodes and plants.

I would warmly recommend this handy compendium for the nematode taxonomist studying the biodiversity of plant-parasitic nematodes. As I know from experience with my Master and PhD students, there is a real need for such monographs that compile the information of all species and provide identification keys.

Wilfrida Decraemer

Royal Belgian Institute of Natural Sciences, Brussels and Ghent University, Ghent, Belgium

**The ESN governing board** has undergone significant change over the last year, with a new president and board members. Here we present a brief introduction to the board members:

**Ralf-Udo Ehlers (President)**

Ralf's focus in nematology is on "the good guys", the entomopathogenic nematodes (EPN) which are used in biological control of insects. Since 2005 Ralf has also become interested in the free living nematode *Panagrolaimus* to develop feed for shrimp larvae. Ralf spends most of his time working at the company e-nema GmbH, which he founded in 1987 together with Arne Peters and Tillmann Frank. Ralf teaches EPN within the Nematology Masters Course at Gent University in Belgium and also teaches one module at UKiel on Biocontrol Biotechnology.



**Loes den Nijs (Secretary/Treasurer)**



Loes has worked at the National Plant Protection Organisation for 15 years. Before that she was employed in research related to plant protection, especially potato cyst nematodes. Loes is specialized in phytosanitary issues related to quarantine nematodes and has general knowledge on all kind of nematodes related to plant protection, trade and legislation.

**John Jones (Editor Nematology News)**

John has been based at The James Hutton Institute (formerly SCRI) for over 20 years and has recently taken up a joint appointment with the University of St Andrews. John has strong links with Ghent University, where he

holds a guest professor position. John is interested in nematode genomics, effector biology and Belgian beer.



**Philippe Castagnone-Sereno**



Philippe works in the Plant-Nematode Interactions team at INRA Sophia Antipolis, France. He has extensive experience in the study of plant-root-knot nematode interactions and has studied the genetic variability of RKNs for more than 20 years. One of Philippe's main scientific goals deals with the evolution of nematode (a)virulence and the durability of plant resistance genes.

**Hans Helder**

Hans works at Wageningen University on nematode phylogenetics and the evolution of plant parasitism ("what is needed to be a plant parasite?" and "how did nematode acquire the necessary genes?"). In addition, his group is developing molecular tools for quantitative nematode community analysis at family, genus or species level. Apart from these phytopathological aspects, the group analyses the biodiversity and ecology of nematode communities in soil and sediments to monitor and better understand the biological condition of agro-ecological and (semi) natural habitats.



**Eric Grenier**

Dr Eric Grenier was elected as a ESN governing board member at the meeting in Adana in September 2012.



After a PhD on entomopathogenic nematodes at INRA Antibes, he joined Dr Mugniery's group in INRA Rennes to develop a project on the effectors of potato cyst nematodes. Eric has been head of the Nematology group since 2004. Dr Grenier and his colleagues work on genetic variability in nematode populations in relation to selection pressures imposed by resistance.

**Jim Baldwin**

Jim is the US based member of the ESN governing board and is based at UC Riverside. His approach to systematics is to primarily address questions (e.g. character homology, convergence) of phenotypic evolution through a range of tools including comparative fine structural reconstruction. Jim is particularly interested in understanding the evolution of feeding structure adaptations associated with plant parasitism.



## International Master of Science in Agro- and Environmental Nematology

At Ghent University, the International Nematology Master programmes, the Master of Science in Nematology (PINC) and the European Master of Science in Nematology (EUMAINE), have been merged into a single International Master of Science in Agro- and Environmental Nematology. The adapted programme will start in September 2015. It is largely based on the former PINC programme, maintaining the nematology educational expertise build up at Ghent University for more than 80 years, together with input from international experts as lecturers. In addition, the adapted programme gives the students the possibility to study at other universities/institutes through an International Mobility track for 30 course credits.



The International Master of Science in Agro- and Environmental Nematology has four majors (Biocontrol and Integrated Pest Management; Bioindicators, Biomonitoring and Ecotoxicology; Biotechnology and Model Organisms; and International Capacity Building and Sustainability) and, in addition to the current nematology master courses, offers new courses such as Quarantine Nematodes and Professional Internship, as well as a large proportion of elective courses to broaden the horizon of the students and to provide increased and more diversified job opportunities. For more information: <http://www.pinc.ugent.be>. We are currently seeking hosts for an internship positions (2-4 weeks, full time, mid July-September) to give our nematology masters students the opportunity



to acquire practical experience of life working as a nematologist. We are also seeking to collaborate with other colleagues, institutes and companies interested in offering a master thesis project to our students and participate in their research. Should you have an internship position/master thesis available or wish to get more details, please contact [Inge.Dehennin@UGent.be](mailto:Inge.Dehennin@UGent.be).

**Wilfreida Decreamer & Inge Dehennin, Ghent University**



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### ***Meloidogyne chitwoodi* / *fallax* - new project and a call for help**

#### **NEMATOOLS : a CASDAR (French Ministry of Agriculture) project on nematodes of major importance for potato production**

Plant-parasitic nematodes belonging to the genera *Meloidogyne* and *Globodera*, are among the most important pests of potato. Some species, including *Meloidogyne chitwoodi*, *M. fallax*, *Globodera pallida* and *G. rostochiensis*, are listed as quarantine pests under Directive 2000/29/EC. The CASDAR NEMATOOLS project (which started on 30th of October 2014) will focus on these nematodes as they represent a major threat to potato crops, especially for the seed potato sector, which is subject to strict rules of production and certification. Headed by the UMT InnoPlant and coordinated by Anne-Claire Le Roux-Nio (FN3PT, UMR IGEPP), this project will be conducted with FN3PT, INRA (UMR IGEPP and ISA) and ANSES and will mainly aim to (1) develop new tools for detecting / quantifying potato quarantine nematodes in complex matrices (plants, soil, waste, ..), (2) develop new tools to investigate the population diversity of *M. chitwoodi* and *M. fallax*, (3) understand nematode dispersal routes and the dispersive potential of agricultural machines, (4) promulgate good practice, especially regarding effluent treatments, (5) evaluate *Meloidogyne* management strategies through the use of novel plant resistances or cultural practices.

In relation to the above, Eric Grenier and Anne-Claire Le Roux-Nio need to obtain field populations (alive or dead) of *M. chitwoodi* and *M. fallax* that have not been maintained in the laboratory for a long time. This is for a project that aims to describe the genetic diversity of these nematodes in Europe. If any members have access to such populations and are willing to share them with Eric and Anne-Claire, please contact: [Eric.Grenier@rennes.inra.fr](mailto:Eric.Grenier@rennes.inra.fr) or [anne-claire.leroux@rennes.inra.fr](mailto:anne-claire.leroux@rennes.inra.fr)

# Nematology Highlights

Nematology volume 16 (2014) was completed with 10 issues and a total of 1,241 pages. The last five issues of Nematology volume 16 contain 3 Forum articles, 45 full research papers, 3 short communications and 2 book reviews. Two papers from each issue are highlighted here.

In total, volume 16 contained 4 Forum articles, 92 full research papers, 7 short communications and 3 book reviews.

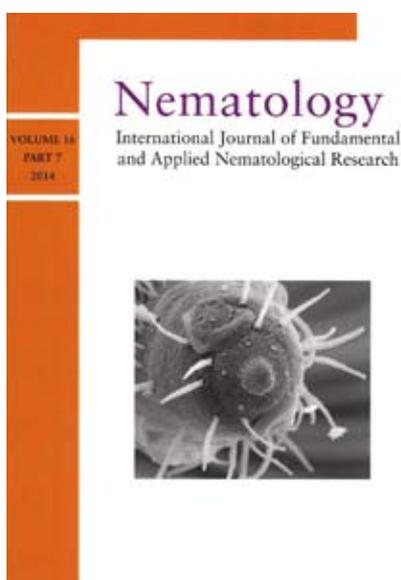
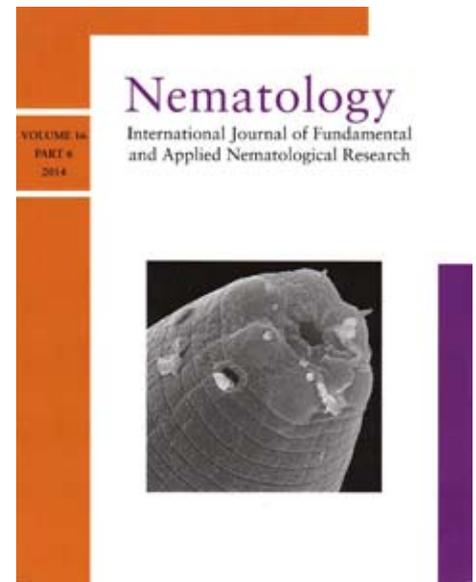
Nematology papers, including the earlier papers of Nematologica, are available on Brill's online platform at: <http://booksandjournals.brillonline.com/content/15685411>. All articles are available online with a DOI immediately corrected proofs are returned.

## Highlights of Vol. 16 (2014) Parts 6-10

### Part 6

Danny Humphreys-Pereira *et al.*, in a paper entitled ***Meloidogyne lopezi n. sp.* (Nematoda: Meloidogynidae), a new root-knot nematode associated with coffee (*Coffea arabica* L.) in Costa Rica, its diagnosis and phylogenetic relationship with other coffee-parasitising *Meloidogyne* species** (pp. 643-661) describe a new species of root-knot nematode attacking coffee in Costa Rica. Phylogenies estimated using Bayesian analyses based on the region between the *COII* and *16S rRNA* mitochondrial genes, as well as the *18S* and *28S* ribosomal nuclear genes indicated that *M. lopezi n. sp.* is closely related to other tropical *Meloidogyne spp.* that infect coffee, especially *M. arabicida*, *M. izalcoensis* and *M. paranaensis* from Central and South America. Isozyme analyses and PCR-RFLP of the *COII-16S rRNA* mitochondrial gene region enable a clear diagnostic differentiation between these species.

Nematodes play an essential role in the diet of certain juvenile freshwater fish but the specific consumption and prey size selection is largely unrecognised. In a study by Sebastian Weber and Walter Traunspurger entitled **Consumption and prey size selection of the nematode *Caenorhabditis elegans* by different juvenile stages of freshwater fish** (pp. 631-641), the effects of different juvenile stages of widely distributed common European freshwater fish on abundances of *C. elegans* were investigated in laboratory experiments using a known number of prey. Gudgeon and two strains of common carp (scaled and mirror) consumed significant amounts of nematodes, whereas roach and ninespine stickleback did not. Although both strains of common carp of all sizes reduced nematode abundance, smaller fish caused a greater reduction than medium-size or large fish. Whilst gudgeon also reduced nematode abundance dependent on the size of the fish, with increasing body length there was a dietary shift towards larger nematode size classes (0.5-1 and > 1mm). Morphometric analysis of the branchial basket indicated that the mesh width of gudgeon and both strains of common carp, but not of roach and ninespine stickleback, is suitable for feeding on specific size classes of nematodes. Together, the results showed that nematodes are used as a food source for different juvenile stages of certain species of freshwater fish.



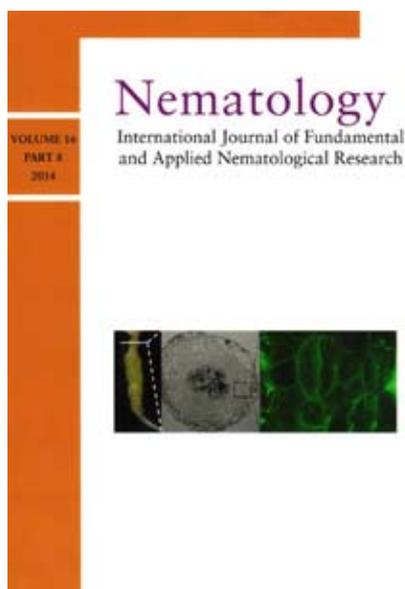
### Part 7

A real-time quantitative PCR assay for the accurate detection and quantification of *Pratylenchus thornei* was reported by Mokrini *et al.* in a paper entitled **The  $\beta$ -1,4-endoglucanase gene is suitable for the molecular quantification of the root-lesion nematode, *Pratylenchus thornei*** (pp. 789-796). A qPCR primer set, including two primers and a probe, was designed based on the sequence of the  $\beta$ -1,4-endoglucanase gene. The specificity of the qPCR assay including the probe was confirmed by the lack of amplification of DNA from 47 populations belonging to 15 other *Pratylenchus* species and nine isolates from *P. thornei*. The assay was very sensitive as it was able to

detect a single individual of *P. thornei*, even when mixed with up to 80 individuals of *P. penetrans*. The qPCR assay developed in this study proved to be specific and sensitive, thus providing a fast and accurate tool for detection and quantification of this pathogen during research, as well as for diagnostic laboratories. The phylogenetic relationships of the Telotylenchidae are investigated by Ghaderi *et al.* in a paper entitled **Phylogenetic relationships of Telotylenchidae Siddiqi, 1960 and Merliniidae Siddiqi, 1971 (Nematoda: Tylenchida) from Iran, as inferred from the analysis of the D2D3 expansion fragments of 28S rRNA gene sequences** (pp. 863-877). The phylogenetic relationships of Telotylenchidae and Merliniidae with other representatives of the order Tylenchida, as obtained from Bayesian inference and Maximum likelihood analysis of partial 28S rRNA gene sequences, are presented and discussed. The results of phylogenetic analysis were in accordance with classifications in which *Bitylenchus* and *Scutylenchus* are considered as separate genera, but *Tessellus* and *Telotylenchus* were synonyms of *Tylenchorhynchus*. The Shimodaira-Hasegawa test of the 28S rRNA gene sequence alignment and trees rejected a large genus concept of *Tylenchorhynchus* and the constrained monophyly for Belonolaimidae revealed within this family two genera groups: *i) Belonolaimus* and *Ibipora*; and *ii) Carphodorus* and *Morulaimus*. The present results also support the combination of *Pratylenchoides* and *Merliniinae* into a single family, the Merliniidae.

## Part 8

Abebe *et al.*, in a Forum article entitled **E-typing for nematodes: an assessment of type specimen use by nematode taxonomists with a summary of types deposited at the Smithsonian Nematode Collection** (pp.

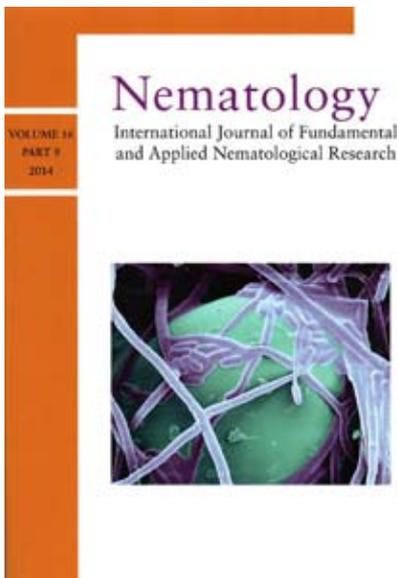


879-888) make some important observations on the use and availability of nematode type material. In a survey of new taxa descriptions, the overwhelming majority (*i.e.*, 97.5%) relied only on literature comparisons. Closer scrutiny of 61 papers revealed a number of shared problems: a third stated that inadequacy of original descriptions, or unavailability/inaccessibility of type specimens had hindered them from unequivocally determining the identity of their species. Fourteen percent reported a discrepancy between the text descriptions and the illustrations, and a tenth revealed the absence of designated types for taxa relevant to their work. A similar number indicated deterioration of types to be a reason for either making wrong conclusions in previous descriptions, or for rendering their descriptions incomplete. The authors argue for E-typing of nematodes as a solution to enhance the future accessibility of type specimens and stress the need for a concerted effort between museum curators, nematological journals and nematological societies to address the problem and to thereby forge a brighter future for the science.

Inducing host plant based systemic resistance is one of the modes of action involved in tri-trophic interactions between host plants, pests and mutualistic microorganisms. In a paper by Selim *et al.* entitled **Biological and chemical dependent systemic resistance and their significance for the control of root-knot nematodes** (pp. 917-927) the ability of *Trichoderma harzianum* isolate T10 and insecticidal active neem powder (NP) to induce systemic resistance in tomato against the root-knot nematode *Meloidogyne javanica* was compared with salicylic acid (SA) and jasmonic acid (JA) as standard elicitors for systemic acquired resistance (SAR) and induced systemic resistance (ISR), respectively. Results showed that when the biotic and abiotic elicitors were applied to the inducer side of a split root plant system significant reductions in nematode infection were observed on the responder side. Results of HPLC analysis showed that T10 significantly increased the accumulation of different metabolites in the shoot of the tomato over the NP, JA and SA elicitors. These biotic and abiotic inducers increased the accumulation of different biochemically active compounds, which alone or in combination may affect the root-knot nematode infection and development.

## Part 9

A Forum article by Masler, entitled **Targeting internal processes of plant-parasitic nematodes in the pursuit of novel agents for their control** (pp. 1001-1017), presents a brief overview of research into the biology of plant-parasitic nematodes relative to their life cycles. Recent advances in elucidating the molecular

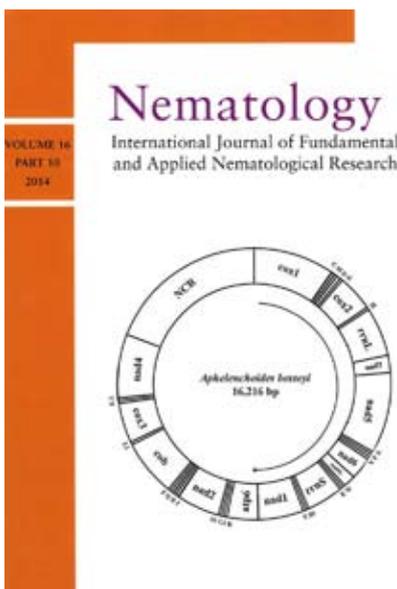


biology and biochemistry of nematode-plant interactions have been driven by advances in genomics and transcriptomics. The remarkable discoveries regarding parasitism, and the application of genetic resources in these findings, provide a template for advanced investigation of the biology of survival stages. While survival biology research lags somewhat behind that of parasitism regarding the molecular genetics of signalling and response, its extensive catalogue promises explosive rates of discovery as progress in genomics and transcriptomics allows a molecular genetic examination of embryogenesis, dormancy and hatching. Phytochemical and temperature effects are discussed, and evidence is presented that the cyst of species of cyst nematodes may provide useful molecules for exploring nematode physiology. In a paper by Peña-Santiago and Álvarez-Ortega, entitled **Studies on the genus *Sectonema* Thorne, 1930 (Dorylaimida: Aporcelaimidae). Redescription of *S. ventrale* Thorne, 1930, the type species of the genus** (pp. 1097-1104) the type species of this interesting and somewhat

unusual dorylaim genus is redescribed in detail from type material and other material examined by Thorne. The nature of the stomatal protrusible structure is analysed and discussed, concluding that it is more a reduced odontostyle than a typical mural tooth, a point that should be the subject of further study.

## Part 10

Palomares-Rius *et al.*, in a Forum article entitled **Cryptic species in plant-parasitic nematodes** (pp. 1105-



1118), summarise the current knowledge concerning cryptic species of plant-parasitic nematode and briefly review the different methods available for their detection and characterisation. Cryptic species represent an important component of biodiversity, such speciation being common among plant-parasitic nematodes and occurring in diverse groups with different life history traits, including the spiral, virus vector, root-lesion and false root-knot nematodes. Cryptic species are important for a number of reasons, including food security, quarantine, non-chemical management technologies and species conservation, and should not be ignored. The magnitude of the phenomenon is largely unknown, but the available data on plant-parasitic nematodes demonstrate that reliance on morphology alone for species delimitation seriously underestimates the total number of taxa. Future research should focus on appropriately designed case-studies using combined approaches, including large-scale, whole sample analyses by next-generation sequencing or proteomics in order to be able to answer the many questions that still remain.

Hyperspectral remote sensing has great potential for accurate detection of forest pests and diseases and in a paper entitled **Detection of *Bursaphelenchus xylophilus* infection in *Pinus massoniana* from hyperspectral data** (pp. 1197-1207), Ju *et al.* determined the best hyperspectral wavelengths or their combinations to discriminate *Pinus massoniana* trees infected by *Bursaphelenchus xylophilus* from healthy trees, and assessed the chlorophyll content of infected trees using the hyperspectral algorithm. The hyperspectral data were gathered for six stages of healthy to infected trees using a 1 nm-wide handheld spectroradiometer. First derivative (FD) spectra and vegetation indices were used for data dimensionality reduction and to select the most effective wavelengths for detection. The most effective FD spectrum in 759 nm was selected to discriminate the infected and healthy *P. massoniana* plants. The vegetation indices used in the fully infected stage correlated with the chlorophyll content. The authors concluded that the combination of specific spectral characteristics and chlorophyll content was a reliable method for confirming infection about 30 days after *B. xylophilus* inoculation.

*David Hunt and Roland N. Perry*  
*Editors-in-Chief, Nematology*

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## Information needed for the newsletter

The ESN Governing Board would like this newsletter to be a Forum that is more widely used by the membership to share news and information. So, if you have any information and/or images that might be of interest to ESN members please send a note to the editor (John Jones - john.jones@hutton.ac.uk). All that is needed is a small amount of text in a word file or an email message, along with an accompanying image. Don't worry about the English - we can help with editing if needed.