European Society of Nematologists

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Nematology news

ESN Braga: 28th August - 1st September 2016

Bags are packed, posters and presentations prepared. Only few days are left to meet up at the University of Minho, Braga, Portugal. Full scientific programme and much more can be found on the official website http://esn2016braga.com/index.php

All information on travel to and from Braga (taxis, busses, train, ...), venue, accommodation, programme, ...can be found on the official website http://esn2016braga.com/index.php. If you have any questions or inquiries about the 32nd Symposium of the European Society of Nematologists, please contact esnbraga.2016@gmail.com

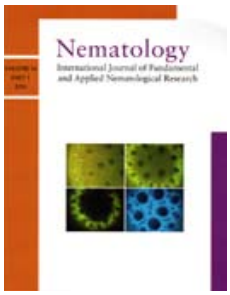
General meeting ESN

During the symposium in Braga ESN will have its general meeting of the society. This meeting will be held on Thursday, 1st September immediately after the last session of that day (around 18:10). The agenda was distributed by our secretary/treasurer Loes den Nijs and can also be found on the ESN website in the members area. During the meeting a new member of the governing board will be elected. Soledad Verdejo-Lucas was the only candidate and you can find her profile below. Also on the agenda is the election of an IFNS representative. Also the location for the 33rd ESN Symposium will be presented. All members are invited to attend the meeting.

PROFILE Soledad Verdejo-Lucas

Dr. Soledad Verdejo-Lucas is a doctor on Pharmacy by the University of Granada, Spain.
She conducted post-doctoral research at Rothamsted Research, United Kingdom, and the University of California at Riverside and Davis. While in Davis, she was awarded a Fulbright scholarship. She joined the Institut de Recerca i Tecnología Agroalimentàries (IRTA) in 1988 to develop a new research line on Nematology in the region of Catalonia, Spain. She pioneered the use of *A. rhizogenes* transformed roots for rearing parasitic nematodes axenically and her main areas of expertise are plant resistance and biological control as sustainable management options to control root-knot nematodes and the citrus nematode. She has been the leader of 21 research projects and is author of more than 130 publications including peer-reviewed articles, book chapters and technical articles. She has been an invited speaker in national and international events, and participated as an invited professor in numerous courses and supervised many PhD and MSc students. In addition, she has held several management positions as Head of Plant Protection, Director of the Plant Pathology Program and Director of Centre of Cabrils at IRTA. She is presently working as a researcher in the Instituto de Investigación y Formación Agraria y Pesquera de Andalucía (IFAPA) in Almería, largest horticultural growing area under protected cultivation in Europe. Her current research interests are focused on the mechanisms of resistance-tolerance to root-knot nematodes in cucurbit crops.

Discounted subscription to *Nematology* for ESN members



Members are reminded that they can subscribe to the 2016 Volume of *Nematology* at the special individual e-only member subscription rate of € 125 (excluding VAT). Please send your order to brill@turpin-distribution.com, quoting action code 70258.

Highlights from recent Nematology issues can be found on pages 4-5

19th Biennial Group Meeting of the "All India Coordinated Research Project (AICRP) on Nematodes in Cropping Systems": Interstate dissemination of plant-parasitic nematodes through infested horticulture nurseries

At the 19th Biennial Group Meeting of the "All India Coordinated Research Project (AICRP) on Nematodes in Cropping Systems" recently held at University of Agricultural and Horticultural Sciences, Shivamogga (Karnataka) India; experts from the country conveyed that the aggressive root-knot nematode, *Meloidogyne enterolobii* got introduced and established through guava root stocks from Chhattisgarh. It is causing huge losses in Dindigul, Coimbatore, Villupuram, Dharampuri and Krishnagiri districts of Tamil Nadu. The group emphasized that there is an urgent need to strengthen and enforce domestic quarantine mechanism to suspend spread of plant-parasitic nematodes with vegetative propagules, especially through seed potatoes and rooted plants - along with soil, from nurseries/ sick plots/ hot-spot areas to disease free niches. Presently nurseries in the country are lacking phytosanitary regulations. To break the pathway, it was suggested to enforce registration and licensing of plants and horticultural nurseries.

Healthy guava nursery

Infected guava nursery

Meloidogyne infection on potato in Gujarat

The recommendation from the Biennial Workshop is immensely important for reducing crop losses of horticultural crops in the country. Horticulture plant nurseries are extremely complex agricultural systems, recorded as pathways for several pests and diseases. Dr. Rajan said that the situation has become further cumbersome with 'on line' availability and sale of live ornamental and horticultural plants in the country. As disease management in nurseries/ green houses require specialisation, nematologists from the group ventured a draft road map - with details of detection, exclusion, risk analysis, critical control points for nursery stocks, infrastructure required for prophylactic measures, and costs involved for a prophylactic holistic system approach for registration/ certification for nurseries and green houses.

Dr. D. J. Patel (Anand Agriculture University) and Dr. P. P. Reddy (Indian Institute of Horticulture Research), expressed deep concerns about new nematode diseases in pomegranate, guava, coconut, banana, spices and vegetables all over the country through propagules. There is urgent need for policy support from Indian Council of Agricultural Research (ICAR), Department of Agriculture and Cooperation as well as Horticulture Mission for framing mandatory regulatory provisions for registration, licensing and certification of protected cultivation houses, nurseries and green houses especially for pest / quarantine requirements.

Dr. R. K. Walia, Project Coordinator (Nematodes), presented a brief history, background and the salient achievements of the AICRP on nematodes and plant nematology research in India. He expressed serious concerns about the losses in crops due to nematode diseases and urged upon the nematologists to devise integrated approaches to manage root-knot nematode problems in recently established poly-houses (for promoting cultivation of vegetables and ornamentals) all over the country.

New publications "Pictorial guide on important nematode diseases of Karnataka", "Comprehensive monograph of rice root-knot nematode (*M. graminicola*)", "Status of plant nematode diseases in Karnataka – a review", and "Compendium of new plant-parasitic nematode diseases of Karnataka", along with a number of bulletins on serious issues were also launched on the occasion.

Rajan

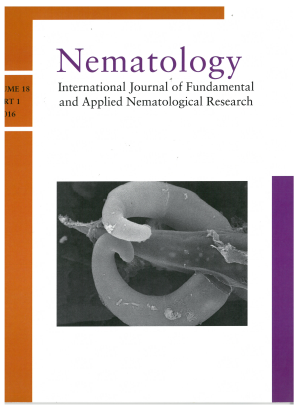
Nematology highlights

With a total of 628 pages, the first five issues (out of ten per volume) of Nematology volume 18 (2016) contain 1 Forum article, 39 full research papers and 2 short communications. A paper from each issue is highlighted here.

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.

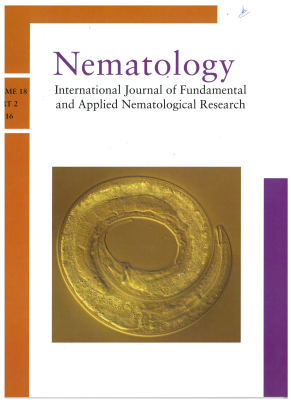
Highlights of Vol. 18 (2016) Parts 1-5

Part 1



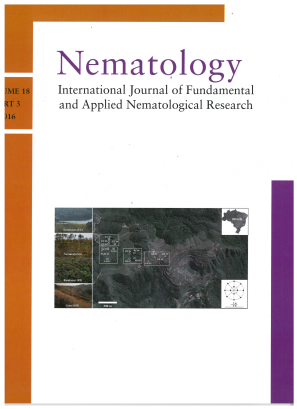
In a useful Forum article, entitled *Cryo-fixation and associated developments in transmission electron microscopy: a cool future for nematology* (pp. 1-14), Wim Bert and colleagues review nematode cryo-fixation techniques. They consider that cryo-fixation results in a superior preservation of fine structural details, and indicate that some observations based on results solely obtained through conventional fixation approaches were either incorrect, or otherwise had severe limitations. The advantages of cryo-fixation are sufficiently self-evident that the authors conclude that the cryo-fixation method is highly likely to become the standard for nematode fixation in the near future.

Part 2



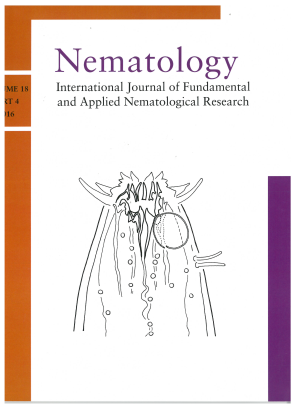
The genus *Bursaphelenchus* contains several lethal plant pathogens, e.g., *B. xylophilus* and *B. cocophilus*, and is an important group for plant quarantine, as all species in the genus are considered potential pests for woody plants. In *Bursaphelenchus kesiyae n. sp. (Nematoda: Aphelenchoididae), isolated from dead wood of* Pinus kesiya *Royle ex Gordon (*Pinaceae*) from Vietnam, with proposal of new subgroups in the* B. fungivorus *group* (pp. 133-146) Kanzaki *et al*. describe a new species, *B. kesiyae*, which was isolated from dead wood of *Pinus kesiya* during a field survey of nematodes associated with dead pine trees (*Pinus* spp.). The species belongs to the *B. fungivorus* group and is closely related to *B. thailandae* and *B. parathailandae*, with which it forms a cryptic species complex. Molecular phylogenetic analysis inferred from near-full length SSU and D2-D3 LSU supported the morphological observations.

Part 3



Entomopathogenic nematodes (EPN) of the genera *Steinernema* and *Heterorhabditis* are important natural enemies of soil insect pests. Molecular approaches have become the techniques of choice for diagnosing EPN. In an article entitled *Molecular characterisation of novel isolates of entomopathogenic nematodes* (pp. 277-291) Iqbal *et al*. used ITS-sequencing to investigate the evolutionary relationship among different isolates of *Steinernema* and *Heterorhabditis* by phylogenetic analysis. They concluded that most of the studied isolates of EPN belong to steinernematids and only few belong to heterorhabditids. The *Steinernema* phylogenetic tree represents five major clades; in clade IV, one isolate represented a sister taxon of *S. vulcanium*, which could be a new species.

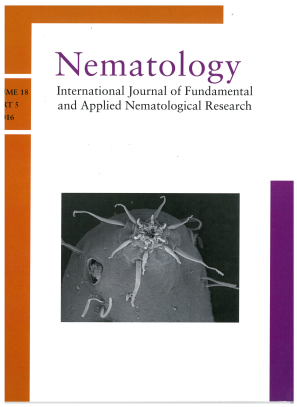
Part 4



Interactions between bacteria and nematode grazers are an important component of soil food webs yet they are usually investigated in artificial agar substrate. In *Disentangling nematode-bacteria interactions using a modular soil model system and biochemical markers* (pp. 404-415), Michael Ackermann and colleagues used a modular microcosm system to examine transport, food choice and foraging with the nematode *Acrobeloides buetschlii* and bacterial diets (*Escherichia coli*, *Pseudomonas putida* and *Bacillus subtilis*) in gamma-irradiated soil. Continuous, random foraging of nematodes was affected by soil type. Food choice experiments revealed diet switch and time lag preference responses, suggesting that nematode population fluctuations are driven by multiple factors such as bacterial attractants, defence strategies or food quality. There was a strong nematode predation pressure, as biomass in *P. putida* declined by 50%, whereas no transport of bacteria through soil was indicated. The authors conclude that semi-natural experimental systems are an essential prerequisite to gain a realistic picture in microbial-microfaunal interactions.

Part 5

There is a lack of information about non-filarial nematodes and their relationships, if any, with intracellular bacteria. An intracellular bacteria *Xiphinematobacter*, belonging to subdivision 2 of the Verrucomicrobia, was previously reported in the ovaries of three species of the non-filarial *Xiphinema americanum*-group of nematodes. In *Diversity of endosymbiont bacteria associated with a non-filarial nematode group* (pp. 615-622), Lazarova *et al*. examined the diversity of *Xiphinematobacter* in 22 populations of *X. americanum* from six continents. They identified nine phylotypes, six of which have not previously been reported. A geographic basis to the phylotypes was noted with phylotypes A and B only found in Europe, whereas phylotypes F, G, H and I were mainly found in North America. Phylotypes C, D and E showed greater geographical variation. Sequences of *Xiphinematobacter* from this study help to inform the taxonomy of Verrucomicrobia indicating that the status and composition of Verrucomicrobia subdivision 2 may needs reappraising.



David Hunt and Roland N. Perry

Editors-in-Chief, Nematology

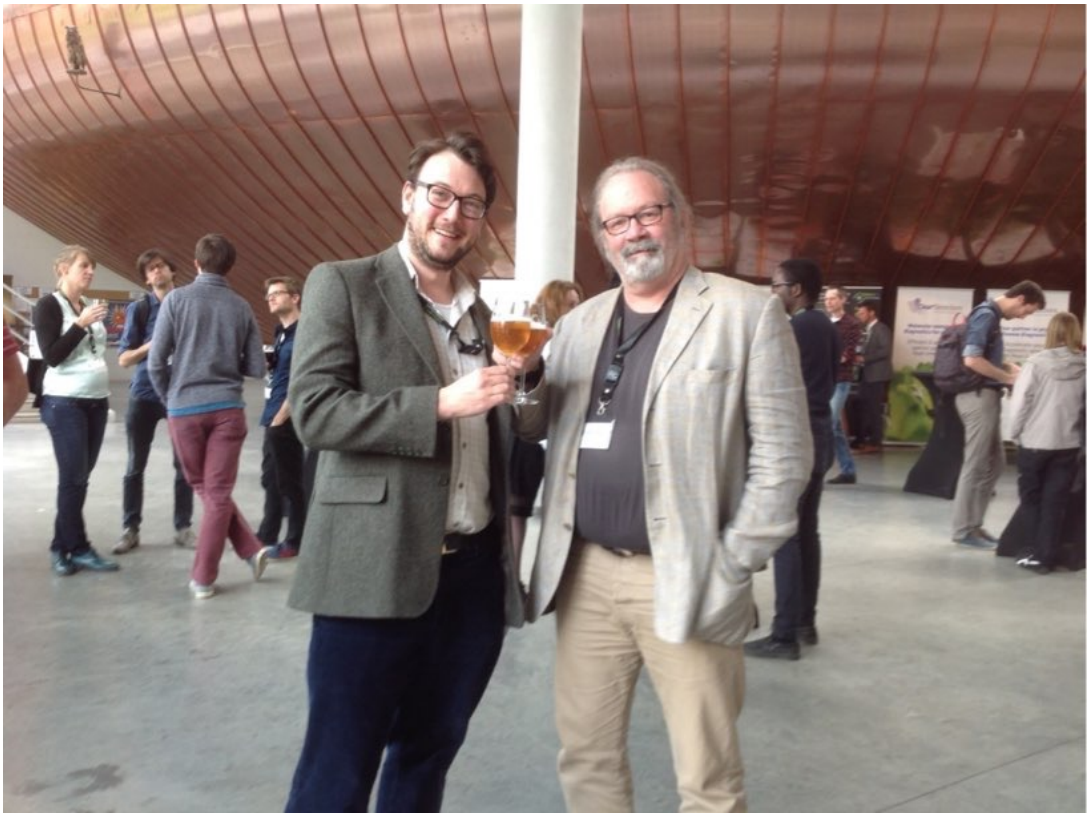
Antibes (France) selected as venue for IFNS congress in 2020

ESN wants to congratulate Pierre Abad and colleagues for their successful bid to organise the 7th International Nematology Congress. If you want to find out more about the location, venue and organisers check out following link:

https://www.youtube.com/watch?v=V6Mu0Ht6hDw&feature=youtu.be

68th International Symposium on Crop protection, Ghent, May 17th 2016

The ISCP at the faculty of Bio-science engineering of Ghent University (Belgium) is an annual meeting with traditionally an interesting session on different aspects of plant-parasitic and entomopathogenic nematodes. This year morning plenary talks were given by dr Cindy Morris (INRA-PACA, Avignon, France) on the changing notions of pathogen ecology, emergence and the frontiers of surveillance, and by dr Jan Stenlid (Swedish University of Agricultural Sciences, Uppsala, Sweden) on emerging diseases in forest ecosystems in Europe and the impact of trade and climate change. The Nematology session was well attended and chaired by Robbie Rae (Liverpool John Moores University, Liverpool, UK). His co-chair Charlie Opperman (NC State University, Raleigh, USA) opened the morning session with an interesting paper on banana paper as a natural fibre matrix for slow release of nematicides. Effect of soil compaction, a granular nematicide and initial population densities of *Pratylenchus penetrans* on yield of onion was presented by Johny Visser (Wageningen University, Lelystad, The Netherlands). Fabrice Ollivier (Anses, Le Rheu, France) discussed molecular quantification of quarantine *Meloidogyne* spp. and the measures implied by the French authorities. Genetic resistance for *Heterodera* spp. and *Pratylenchus* spp. was examined in Turkey (Imren et al., Biological Control Research Institute, Adana, Turkey) and presented by Refik Bozbuğa. Nicole Viaene (ILVO, Merelbeke, Belgium) ended the morning session with an overview of rapid and reliable detection of potato cyst nematodes by modifications of sampling and extraction methods. After lunch and poster session, a 3rd plenary talk was given by Martin Ward (EPPO, Paris, France) who presented the European and Mediterranean Plant Protection Organization. A lively talk of Robbie Rae about the amazing slug parasitic nematode *Phasmarhabditis hermaphrodita* started the afternoon session. Toon Janssen (Ghent University, Belgium) showed that multi-gene phylogenetics in combination with morphology allow species delineation and DNA barcode based diagnostics within a cryptic *Pratylenchus* species complex. Pioneer putative effectors were revealed through parallel sequencing of *Heterodera schachtii* transcriptome (Habash et al., University of Bonn, Bonn, Germany). Dianna Naalden (Ghent University, Belgium) discussed how effector Mg-52 of *M. graminicola* suppresses two different defense mechanisms at two different locations. The session was ended by Refik Bozbuğa (University of Leeds, Leeds, UK) who analysed the molecular architecture of nematode induced galls. As usual discussions continued during the reception and the banquet and were finalised in the jenever bar. The marvelous historic city centre of Ghent will welcome you for the 69th edition of the ISCP, May 23rd 2017 (deadline for abstracts is 31/01/2017, www.ugent.be/bw/crop-protection/en/iscp/).



Robbie Rae and Charlie Opperman at the 68th ISCP

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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 (Wim Wesemael - wim.wesemael@ilvo.vlaanderen.be). All that is needed is a small amount of text in a word file or an email message, along with an accompanying image.