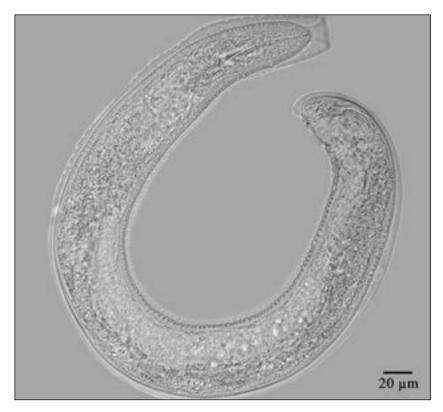
JOURNAL of NEMATOLOGY

The Official Journal of The Society of Nematologists

Volume 46, Number 3, September 2014



Trichodorus sp. Male body, stitched from 60 x polarized images

Journal of Nematology 46(3):261–308 (2014) Hanover, Pennsylvania

JOURNAL OF NEMATOLOGY

THE OFFICIAL JOURNAL OF THE SOCIETY OF NEMATOLOGISTS

EDITORIAL BOARD

Editor-in-Chief

Nancy Kokalis-Burelle, 2014. USDA-ARS, Ft. Pierce, FL

Editors

Andreas Westphal, 2014. Julius Kühn-Institut, Münster, Germany

Zafar Handoo, 2014. USDA-ARS, Beltsville, MD

James LaMondia, 2014. The Connecticut Agricultural Experiment Station, Windsor, CT

David Shapiro-Ilan, 2014. USDA-ARS, Byron, GA

Inga Zasada, 2014. USDA-ARS, Corvallis, OR

William Crow, 2015. University of Florida, Gainesville, FL

Abigail Walter, 2015. Swedish University of Agricultural Sciences

Salliana Stetina, 2015. USDA-ARS, Stoneville, MS

Sergei Subbotin, 2015. California Department of Food and Agriculture, Sacramento, CA

Erik J. Ragsdale, 2016. Max Planck Institute, Tübingen, Germany

Axel Elling, 2016. Bayer CropScience, Morrisville, NC

Richard F. Davis, 2016. USDA-ARS, Tifton, GA

Andrea M. Skantar, 2017. USDA-ARS, Beltsville, MD

Christine Griffin, 2017. National University of Ireland, Maynooth, Co. Kildare, Ireland

Published by the Society of Nematologists

President: Stephen Thomas President Elect: Byron Adams Vice-President: Patricia Timper Secretary: Andrea Skantar Treasurer: Senyu Chen Editor-in-Chief: Nancy Kokalis-Burelle Executive Member: Nathan Schroeder Executive Member: Horacio Lopez Nicora Executive Member: Paulo Vieira Webpage/Newsletter Editor: Roxana Myers

Journal of Nematology (ISSN 0022-300X) is published quarterly by The Society of Nematologists. For other information, visit: http://www.nematologists.org

Mention of a pesticide, cultivar, or commercial or proprietary product does not constitute a recommendation or an endorsement of its use by editors, author(s), their institutions, or The Society of Nematologists. Authors are responsible for statements made in the Journal, whether of fact or opinion.

Printed by The Sheridan Press, 450 Fame Ave., Hanover, PA 17331.

Sustaining Associates of THE SOCIETY OF NEMATOLOGISTS

A&L Southern Agricultural Laboratories

David Sui (ddsui@al-southern.com) Pompano Beach, FL

Ajay North America, LLC

Mark Leafgreen (lefgrenm@bellsouth.net) Powder Springs, GA

Arvesta

Charles T. Schiller (cschiller@arvesta.com) Cary, NC

BASF Plant Science LLC

Volker Mittendorf (volker.mittendorf@basf.com) Research Triangle Park, NC

Bayer Crop Science

Lee S. Hall (lee.hall@bayercropscience.com) Research Triangle Park, NC

Divergence, Inc.

James P. McCarter (mccarter@divergence.com) St. Louis, MO

Dow Agro Sciences

James P. Mueller (jpmueller@dow.com) Brentwood, CA

DuPont Crop Protection

Michel Å. Rivera (michel.a.rivera@usa.dupont.com) Newark, DE

Pasteuria BioSciences, LLC

Kelly Smith (ksmith@pasteuriabio.com) Alachua, FL

Pest Pros, Inc.

Randy Van Haren (pestpros@uniontel.net) Plainfeld, WI

Syngenta Crop Protection, Inc.

David Long (david.long@syngenta.com) Greensboro, NC

Sustaining associate members help support The Society of Nematologists (SON) through their financial assistance, knowledge, expertise, and professional involvement in the science of nematology. For information about these companies or if you would like to become a sustaining associate member, contact a member of the Executive Board, or the SON Business Office (societyofnematologist@gmail.com).

Annual membership in the Society of Nematologists is \$60 US for regular members, \$30 for students, and \$500 for Sustaining Associates. Payment must be with a check in US currency drawn on a US bank or by Visa or MasterCard. A fee of \$9.95 will be added to all transactions. The Nematology Newsletter is included in the membership dues for regular and student members. Institutional Subscription rates are \$140/yr in the United States and \$160 outside the US. This and other information can be found at the Society's website: http://www.nematologists.org.

BACK ISSUES OF JOURNAL OF NEMATOLOGY

Vols. 21–34 (1989–2002). Price per issue includes postage and handling. Members: \$10.00; Nonmembers: \$40.00. Please indicate volumes desired and send check, money order, or credit card (VISA or MasterCard) account number and expiration date to the Society of Nematologists, Inc., 108 West Burwell Avenue, Loundonville, OH 44842

CONTENTS JOURNAL OF NEMATOLOGY

Vol. 46, No. 3 September 2014

Contributed Papers

Management

Nematicidal Effects of Silver Nanoparticles on Root-knot Nematode in Bermudagrass. W. A. Cromwell, Joopil Yang, J. L. Starr, and Young-Ki Jo	
Efficacy of Organic Soil Amendments for Management of <i>Heterodera glycines</i> in Greenhouse Experiments. Zane J. Grabau and Senyu Chen	267
Molecular Biology	
Identification of <i>msp1</i> Gene Variants in Populations of <i>Meloidogyne incognita</i> Using PCR-DGGE. Mohamed Adam, Johannes Hallmann, and Holger Heuer	
Entomopathogenic Nematodes	
Infectivity of <i>Steinernema carpocapsae</i> and <i>S. feltiae</i> to Larvae and Adults of the Hazelnut Weevil, <i>Curculio nucum</i> : Differential Virulence and Entry Routes. Laia Batalla-Carrera, Ana Morton, David Shapiro-Ilan, Michael R. Strand, and Fernando García-del-Pino	
Biological Control	
Evaluation of 31 Potential Biofumigant Brassicaceous Plants as Hosts for Three <i>Meloiodogyne</i> Species. Scott Edwards and Antoon Ploeg	
Behavior	
The Feeding Behavior of Adult Root-knot Nematodes (<i>Meloidogyne incognita</i>) in Rose Balsam and Tomato. Nao Miyashita, Tetsuo Yabu, Takayuki Kurihara, and Hironori Koga	
Taxonomy	
A <i>Trichodorus</i> (Triplonchida: Trichodoridae) Nematode from Thrips (Thysanoptera: Panchaetothripinae). L. K. Carta and A. M. Skantar	

JOURNAL OF NEMATOLOGY

THE OFFICIAL JOURNAL OF THE SOCIETY OF NEMATOLOGISTS

EDITORIAL BOARD

Editor-in-Chief

Nancy Kokalis-Burelle, 2014. USDA-ARS, Ft. Pierce, FL

Editors

Andreas Westphal, 2014. Julius Kühn-Institut, Münster, Germany

Zafar Handoo, 2014. USDA-ARS, Beltsville, MD

James LaMondia, 2014. The Connecticut Agricultural Experiment Station, Windsor, CT

David Shapiro-Ilan, 2014. USDA-ARS, Byron, GA

Inga Zasada, 2014. USDA-ARS, Corvallis, OR

William Crow, 2015. University of Florida, Gainesville, FL

Abigail Walter, 2015. Swedish University of Agricultural Sciences

Salliana Stetina, 2015. USDA-ARS, Stoneville, MS

Sergei Subbotin, 2015. California Department of Food and Agriculture, Sacramento, CA

Erik J. Ragsdale, 2016. Max Planck Institute, Tübingen, Germany

Axel Elling, 2016. Bayer CropScience, Morrisville, NC

Richard F. Davis, 2016. USDA-ARS, Tifton, GA

Andrea M. Skantar, 2017. USDA-ARS, Beltsville, MD

Christine Griffin, 2017. National University of Ireland, Maynooth, Co. Kildare, Ireland

Published by the Society of Nematologists

President: Stephen Thomas President Elect: Byron Adams Vice-President: Patricia Timper Secretary: Andrea Skantar Treasurer: Senyu Chen Editor-in-Chief: Nancy Kokalis-Burelle Executive Member: Nathan Schroeder Executive Member: Horacio Lopez Nicora Executive Member: Paulo Vieira Webpage/Newsletter Editor: Roxana Myers

Journal of Nematology (ISSN 0022-300X) is published quarterly by The Society of Nematologists. For other information, visit: http://www.nematologists.org

Mention of a pesticide, cultivar, or commercial or proprietary product does not constitute a recommendation or an endorsement of its use by editors, author(s), their institutions, or The Society of Nematologists. Authors are responsible for statements made in the Journal, whether of fact or opinion.

Printed by The Sheridan Press, 450 Fame Ave., Hanover, PA 17331.

Cover—Trichodorus sp. Male body, stitched from 60 x polarized images. See article by Carta and Skantar.

Sustaining Associates of THE SOCIETY OF NEMATOLOGISTS

A&L Southern Agricultural Laboratories

David Sui (ddsui@al-southern.com) Pompano Beach, FL

Ajay North America, LLC

Mark Leafgreen (lefgrenm@bellsouth.net) Powder Springs, GA

Arvesta

Charles T. Schiller (cschiller@arvesta.com)
Cary, NC

BASF Plant Science LLC

Volker Mittendorf (volker.mittendorf@basf.com) Research Triangle Park, NC

Bayer Crop Science

Lee S. Hall (lee.hall@bayercropscience.com) Research Triangle Park, NC

Divergence, Inc.

James P. McCarter (mccarter@divergence.com) St. Louis, MO **Dow Agro Sciences** James P. Mueller (jpmueller@dow.com)

Brentwood, CA

DuPont Crop Protection

Michel Å. Rivera (michel.a.rivera@usa.dupont.com) Newark, DE

Pasteuria BioSciences, LLC

Kelly Smith (ksmith@pasteuriabio.com) Alachua, FL

Pest Pros, Inc.

Randy Van Haren (pestpros@uniontel.net) Plainfeld, WI

Syngenta Crop Protection, Inc.

David Long

(david.long@syngenta.com) Greensboro, NC

Sustaining associate members help support The Society of Nematologists (SON) through their financial assistance, knowledge, expertise, and professional involvement in the science of nematology. For information about these companies or if you would like to become a sustaining associate member, contact a member of the Executive Board, or the SON Business Office (societyofnematologist@gmail.com).

Annual membership in the Society of Nematologists is \$60 US for regular members, \$30 for students, and \$500 for Sustaining Associates. Payment must be with a check in US currency drawn on a US bank or by Visa or MasterCard. A fee of \$9.95 will be added to all transactions. The Nematology Newsletter is included in the membership dues for regular and student members. Institutional Subscription rates are \$140/yr in the United States and \$160 outside the US. This and other information can be found at the Society's website: http://www.nematologists.org.

BACK ISSUES OF JOURNAL OF NEMATOLOGY

Vols. 21–34 (1989–2002). Price per issue includes postage and handling. Members: \$10.00; Nonmembers: \$40.00. Please indicate volumes desired and send check, money order, or credit card (VISA or MasterCard) account number and expiration date to the Society of Nematologists, Inc., 108 West Burwell Avenue, Loundonville, OH 44842