Discocriconemella repleta n.sp., and the male of Criconemoides inusitatus Hoffmann, 1974 (Criconematidae: Nematoda)

J. PINOCHET and D. J. RASKI

Abstract: Discocriconemella repleta n.sp. from Brazil is described. The male of Criconemoides inusitatus Hoffmann, 1974, is described here for the first time. Key Word: Taxonomy.

A recent, extensive review of the genera of Criconematidae by Loof and de Grisse (3) leaves the genus Discocriconemella with 10 valid species. An additional species is presented in this taxonomic study. Criconemoides inusitatus Hoffmann, 1974 (2) was described from Iowa woodlands. Paratype specimens from that collection were compared with a population from Minnesota and were found to be the same, except that the latter contained seven males, which were previously unknown for this species. They are described herein.

MATERIALS AND METHODS

Specimens stored in 5% formalin in a mass collection obtained from the University of California Nematode Survey Collection (Davis, UCNSC) were assembled for this study. Extraction and killing procedures are not known. Thereafter, specimens were passed through FAA, 2.5% glycerin in 30% alcohol and then to 5% glycerin in 30% alcohol. The last solution was allowed to evaporate (to glycerin) in BPI dishes before the specimens were mounted in dehydrated glycerin.

Discocriconemella repleta n.sp.

(Fig. 1)

Paratypes (10 females): L = .27 mm (.25-29); a = 8 (7-8); b = 2.9 (2.6-3.1); c = 21 (20-26); V = 93 (92-95); stylet = 62 μm (59-66); prorhabdion = 51 μm (48-56); R = 110 (107-116); Rv = 11 (10-12); R an = 7; R van = 3.4; R ox = 39 (37-42).

Holotype (female): L = .27 mm; a = 8; b = 3.1; c = 21; V = 94; stylet = 66 μm; prorhabdion = 56 μm; R = 107; R v = 10; R an = 7; R van = 3.


Allotype (male): L = .32 mm; a = 17; c = 21; T = 42; spicules = 25 μm; gubernaculum = 5 μm.

Body cylindrical. Cephalic region with round protrusion at oral aperture which appears to be an artifact. Stylet absent. Esophagus poorly developed. Lateral field with two faint lines. Excretory pore 99 μm from head region; hemizonid four annules anterior to excretory pore. Testis outstretched; sperm cells about 1.0-1.5 μm in diameter. Cloacal sheath distinct. Spicules curved ventrad. Caudal alae rudimentary. Tail short, blunt with rounded terminus.

Juveniles (3 fourth-stage ?): L = .21 mm (.20-22); a = 6; b = 2.5 (2.3-2.8); stylet = 46 μm (42-48); prorhabdion = 37 μm (33-39); R = 116 (113-120).


Allotype (male): Slide number 1487 UCNSC, Davis, California. Same data as holotype.

Received for publication 15 March 1976.

Research Assistant and Professor of Nematology, respectively, Department of Nematology, University of California, Davis, California 95616. The authors are very grateful to the late Dr. S. A. Sher, Department of Nematology, University of California, Riverside, and Dr. D. C. Norton, Department of Botany and Plant Pathology, Iowa State University, Ames, Iowa, for providing some of the material used in this study.
Discocriconemella replea n.sp.: Pinochet, Raski 329

Paratypes: 9 females, 1 male (in deteriorated condition), 3 juveniles, 1 en face section of female, and 1 cross-section of male. Distributed as follows: 5 females, 1 male, 1 en face section of female, and a cross-section of male at UCNSC, Davis, California; one female each at Plantenziektkenkundige Dienst (PD), Wageningen, The Netherlands, at the United States Department of Agriculture Nematode Collection, (USDANC), Beltsville, Maryland, at the National Nematode Collection, Indian Agricultural Research Institute, New Delhi, India, and at the Nematology Department, Rothamsted Experimental Station, Harpenden, England.

Type habitat and locality: Soil about the roots of cacao, Theobroma cacao L., at Pauso Alegre, Porto Seguro, Brazil.

Diagnosis: Discocriconemella repleta is closely related to D. colbrani Luc, 1970 (5) and D. limitanea (Luc, 1959) De Grisse & Loof, 1965 (1, 4, 5). It can be differentiated from D. colbrani by its larger number of body annules, 110 (107-116) vs. 79 (76-82); greater R., 11 (10-12) vs 6-8; and the location of excretory pore, (Rex), 39 (37-42) vs 27-28 for D. colbrani.

D. repleta differs from D. limitanea by its larger stylet, 62 μm (59-66) vs. 48-55 μm. Another population of 20 females measured by M. Luc (1) showed a stylet length of 43 μm (38-50). Males of these two species also differ. D. repleta has a shorter tail and a rudimentary bursa vs. longer tail and absence of bursa in D. limitanea.

An additional collection of 33 females has been identified from cacao near Espírito Santo, Brazil. However, these specimens were somewhat flattened.

Discussion: Sauer and Winoto (6) described specimens of D. limitanea from Malaysia that show body diameter narrowing immediately posterior to vulva, in comparison with several African populations. D. repleta has a tail shape similar to the Malaysian population, but differs in the more prominently rounded anterior vulvar lip and shorter tail.

Criconemoides inusitatus Hoffmann, 1974

(Fig. 2)

Sixty-nine females and seven males of this species were collected from elm in the locality of Brooklyn Park, Minneapolis,
Minnesota by S. A. Sher, 10 September 1973. The females of this population conform closely to the characteristics and dimensions given by Hoffmann. The description of the males is as follows:

**Males** (seven): L = .38 mm (.36-.40); a = 19 (18-20); b = 4.5 (4.2-4.8); c = 14 (14-15); T = 26 (22-31); spicules = 29 μm (27-30); gubernaculum = 4 μm (4-5).

Body with open "C" shape to straight after fixation. Stylet absent. Head region round with annulation distinct. Small lip present at tip. Esophagus degenerate but with distinct outline. Excretory pore 87 to 96 μm from anterior region; hemizonid four annules anterior to excretory pore. Lateral field begins at fifth annule from anterior end as two lines, becomes three at fourteenth annule, four at twenty-third annule, and continues as four to end of caudal alae. Body annules distinct, about 2 μm wide. Testis outstretched; sperm cells about 1.5 μm in diameter. Spicules curved ventrally. Cloacal sheath lacking. Rudimentary caudal alae present. Tail narrows gradually, slender conoid with rounded terminus.

This collection is deposited as follows: 44 females and 4 males at UCNSC, Davis, California; 9 females and 1 male at USDANC, Beltsville, Maryland; 8 females and 1 male at PD, Wageningen, The Netherlands; 2 females and 1 male at Department of Botany and Plant Pathology, Iowa State University, Ames, Iowa.

**LITERATURE CITED**


**Effects of Pratylenchus vulnus and Xiphinema index**

**Singly and Combined on Vine Growth of Vitis vinifera**

**J. PINOCHET, D. J. RASKI, and A. C. GOHEEN**

Abstract: Inoculation of 'Thompson Seedless' grapevines with 500 *Xiphinema index* or 1,000 *Pratylenchus vulnus* alone or in combination suppressed vine shoot and root growth under greenhouse conditions. *Pratylenchus vulnus* caused greater stunting of roots than *X. index*. Each nematode species inhibited top growth about equally. Concomitant inoculations caused greater stunting of tops and roots than did inoculations of either nematode species alone. Differences in growth between inoculated and control plants increased with exposure time. *Pratylenchus vulnus* competed with and gradually superseded in numbers an established population of *X. index*. Both species reproduced on 'Thompson Seedless' roots, but *P. vulnus* increased to a much higher level than did *X. index*. The increase of *P. vulnus*, together with extensive damage, proves its pathogenicity to grapevines. Key Words: nematode interaction.

Various root-lesion nematodes of the genus *Pratylenchus* have been reported in roots of grapevines in California (1, 17, 18, 26). Among these is *Pratylenchus vulnus* Allen and Jensen, which has been found to cause severe injury to peach, citrus, narcissus, walnut, plum, boxwood, rose, avocado, and ponderosa pine (2, 4, 5, 7, 9, 14, 15, 19, 22, 23, 25). *Xiphinema index*, a known grape pathogen (3, 8, 16, 18, 24), has been found in mixed populations with *P. vulnus*. Information on the effect of the lesion-nematode on grapevines is limited (18, 20) and, regarding mixed populations