

**Discocriconemella inaratus n. sp. and Criconemoides
inusitatus n. sp. (Nematoda) from Iowa¹**

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Abstract: *Discocriconemella inaratus* n. sp. from Iowa prairies is characterized by a single offset disk-shaped head annule which is often discontinuous, a sigmoid vagina, a stylet length of 51-61 μm , and 77-100 smooth body annules. *Criconemoides inusitatus* n. sp. from Iowa woodlands is characterized by two offset head annules, a "closed" vulva, a straight vagina, no overlapping anterior vulva lip, a stylet length of 42-50 μm , and 71-86 smooth body annules. *Key Words:* Criconematinae, ring nematodes, taxonomy.

Soil samples taken from wooded areas and remnant prairies in Iowa contained two new species of Criconematinae. The nematodes

were recovered by a centrifugal-flotation method (3), heat-relaxed at 37 C, fixed in 5% formalin at 37 C, and mounted in glycerin (9). Measurements were made with an ocular micrometer and camera lucida tracings.

The revision of *Criconemoides* Taylor, 1936 by De Grisse and Loof (2) has received deserved criticism (5, 7, 10). Unfortunately, the weaknesses of the new classification have hidden its true value. The characters used to separate and group species appear to be sound

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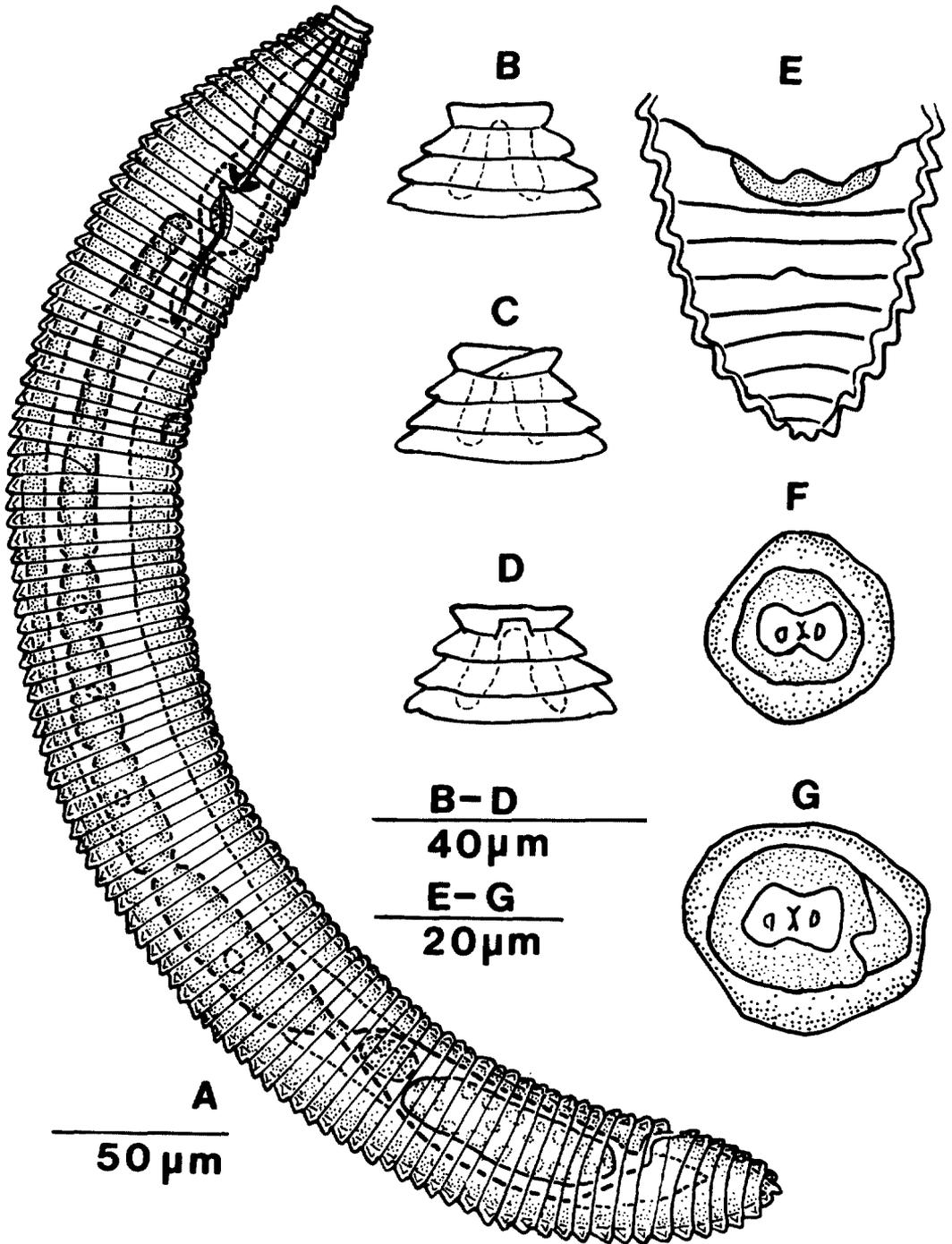


FIG. 1-(A to G). *Discocriconemella inaratus* n. sp. A) Female, lateral view; B) Continuous head annule, lateral view; C) Discontinuous head annule, lateral view; D) Second variation in head annule, lateral view; E) Female, ventral view of vulva; F) female, *en face* view; G) Female, variation in *en face* view.

and consistent, a feature not found in the old system. The objections to the new classification can be solved by modifying the generic boundaries and by shifting species to

more appropriate groups. For these reasons, I have decided to describe these new species within the concepts proposed by De Grisse and Loof.

Discocriconemella inaratus n. sp.

Measurements (♀ holotype): L = 516 μm; a = 9.9; b = 4.7; c = ?; stylet = 57 μm; V = 93%; R_v = 9; R = 104; R_{ex} = ?

(16 ♀♀ paratypes): L = 422 μm (354-486); a = 9.1 (7.1 - 11.3); b = 4.2 (3.6 - 5.6); c = ?; stylet = 55 μm (51-61); V = 92% (91-94); R_v = 9 (8-9); R = 93 (77-100); R_{ex} = 26 (25-26); R_{an} = 6; R_{v,an} = 2. [R = total number of annules (including head annules); R_v = number of annules from vulva to tail terminus; R_{ex} = number of annules from anterior end to excretory pore; R_{an} = number of annules from anus to tail terminus; R_{v,an} = number of annules between vulva and anus].

Description: Only females were found. The ventrally curved body is widest in the anterior one-third. The head is comprised of a single offset disk-shaped anteriorly directed annule (Fig. 1-A). The head annule may be complete (Fig. 1-B,F) or discontinuous (Fig. 1-C,D,G). Sublateral lobes are absent. The body annules are retrorse with smooth posterior edges and occasional anastomoses. A typical criconematoid esophagus is present. The tip of the single, outstretched ovary often extends anterior to the basal bulb. A spermatheca, usually containing sperm, is located in the anterior portion of the uterus. The anterior vulva lip is bilobed (Fig. 1-E). The vagina is sigmoid and the vulva is open (Fig. 1-A).

Type habitat and locality: Holotype-female collected 6 June 1970 in the Kalsow Prairie, Pocahontas Co., Iowa, near roots of unidentified grass.

Paratypes-16 females collected in the same habitat and locality as the holotype.

Specimens: Holotype on slide T-222t, 16 female paratypes on slides T-1525p to T-1532p, one female vulva view on slide T-1535p and two females *en face* view on slides T-1533p and T-1534p, U.S. Dept. of Agriculture Nematode Collection, Beltsville, Md., USA.

Diagnosis: *Discocriconemella inaratus* is most closely related to *D. glabrannulata* De Grisse, 1967, *D. macramphida* De Grisse, 1967, and *Criconemoides colbrani* Luc, 1970. It differs from *D. glabrannulata* by having a longer stylet, longer length, broken head annules, and the sigmoid vagina. It differs

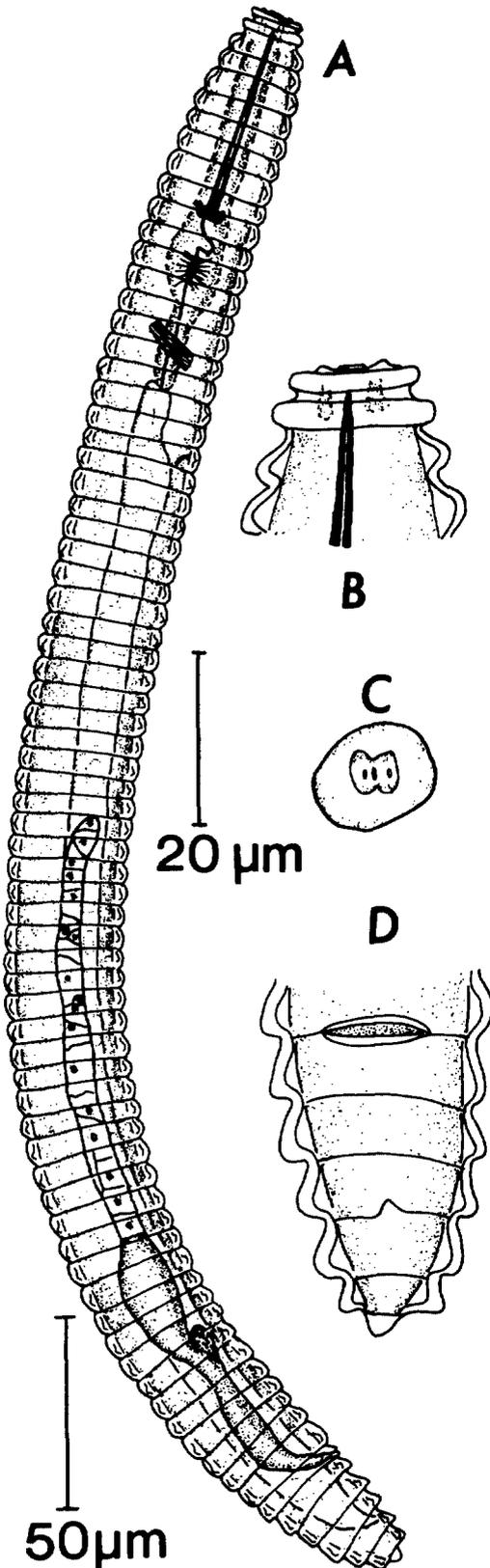


FIG. 2-(A to D). *Criconemoides inusitatus* n. sp. A) Female, lateral view; B) Female, lateral view of anterior region; C) Female *en face* view; D) Female, ventral view of vulva.

from *D. macramphida* by having smaller amphids, longer body length, and a sigmoid vagina (1). It differs from *C. colbrani* by its longer length, sigmoid vagina, broken head annules, and bilobed anterior vulva lip (5). *Criconemoides lamottei* Luc, 1970 exhibits similar *en face* characteristics of the broken head annules (5), but differs from *D. inaratus* by having a conoid tail, a straight vagina, crenated body annules, and no bilobed anterior vulva lip.

Measurements of a second population (7 ♀♀): L = 427 μ m (378-499); a = 10 (9.2-10.8); b = 4.2 (3.8-4.8); C = ?; stylet = 55 μ m (52-58); V = 93% (93-94); R_v = 8 (7-9); R = 90 (88-93); R_{cx} = 25.

Habitat and locality: These specimens were collected from soil around roots of *Lathyrus venosus* Muhl. in the Sheeder Prairie in Guthrie Co., Iowa, on 14 June 1971. They are in the nematode collection of the Department of Botany and Plant Pathology, Iowa State University, Ames, Iowa.

Criconemoides inusitatus n. sp.

Measurements (♀ holotype): L = 447 μ m; a = 13.6; b = 4.6; c = ?; stylet = 49 μ m; V = 93%; R_v = 7; R = 74; R_{cx} = 21.

(20 ♀♀ paratypes): L = 459 μ m (337-514); a = 14.7 (11.6-16.7); b = 4.7 (3.8-5.0); c = ?; stylet = 48 μ m (42-50); V = 94% (93-95); R_v = 7 (6-8); R = 77 (71-86); R_{cx} = 22 (20-24); R_{an} = 4; R_{an} = 2.

Description: Only females were found. The body is straight or slightly curved ventrally. The head is comprised of two annules which are more or less offset from the following body annules. The second head annule is larger than the first (Fig. 2-A,B). The four small sublateral lobes are fused into a dorsal pair and a ventral pair. The dorsal pair of sublateral lobes are connected laterally along the margins of the labial disc to the ventral pair (Fig. 2-B,C). A typical criconematoid esophagus is present. The ovary is single and outstretched. A sperm-filled spermatheca is located in the anterior portion of the uterus. The vulva is "closed" and the vagina is straight (Fig. 2-A). There is no projection of the anterior vulva lip (Fig. 2-D).

Type habitat and locality: Holotype-female collected 2 June 1972 around roots of *Tilia americana* L. within Pammel Woods located on the northwest border of the Iowa State University campus, Ames, Iowa.

Paratypes- 20 females collected in the same habitat and locality as the holotype.

Specimens: Holotype on slide T-223t, 20 female paratypes on slides T-1536p to T-1542p, one female vulva view on slide T-1545p and two female *en face* view on slides T-1543p and T-1544p, U.S. Dept. Agriculture Nematode Collection, Beltsville, Md., USA.

Slides containing several females are in the collection of the Department of Botany and Plant Pathology, Iowa State University.

Diagnosis: This species possesses the characteristics of *Criconemoides* as envisioned by Loof and De Grisse (4) in that it has the sublateral lobes partially fused to nearly form another head annule, and has a "closed" vulva. By virtue of the aforementioned characteristics, *Criconemoides inusitatus* is related to *C. humilis* Raski and Riffle, 1967, *C. vernus* Raski and Golden, 1965, *C. amorphus* De Grisse, 1967, and *C. informis* (Micoletzky, 1922) Taylor, 1936. This species differs from *C. humilis* in that the latter does not have offset head annules (8). *Criconemoides inusitatus* differs from *C. vernus* and *C. amorphus* in that the latter two nematodes have longer stylets and conical tail shapes (6,7), and it differs from *C. informis* (11) in its shorter stylet length and greater number of body annules.

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