Two New Species of Tylenchidae, *Basiroides nortoni* n. sp. and *Tylenchus hageneri* n. sp. (Nematoda: Tylenchida)[1]

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Abstract: Basiroides nortoni n. sp. and *Tylenchus hageneri* n. sp. from soil around roots of corn from Ollie, Iowa, are described and illustrated. *B. nortoni* n. sp. has a posterior vulva, a long posterior uterine branch and an arcuate tail with pointed terminus. *T. hageneri* n. sp. has four lines in the lateral field, coarse transverse cuticular striae along the whole body, and a filiform tail slightly shorter than vulva-anus distance. *Key Words: Basiroides nortoni, Tylenchus hageneri, Tylenchidae,* Corn.

During a study of the ecology of nematodes in Iowa, specimens of *Basiroides* and *Tylenchus* were found that seemed distinct from other members of those genera. They are described below as *B. nortoni* n. sp. and *T. hageneri* n. sp. Sex ratios for both species were about 1:1. Measurements of females, males, and larvae were made from fixed specimens mounted in glycerine (3).

SPECIES DESCRIPTIONS

Basiroides nortoni n. sp.

(Fig. 1, A–D)

Measurements (10 ♀♀ *paratypes*): L = 745 μ (670–860); a = 38.5 (28.0–43.0); b = 7.0 (6.1–8.0); c = 10.0 (9.2–11.6); c′ (tail length/anal body diameter) = 6.5 (5.4–6.8); V = 81% (79.5–85.5); G (overall length of anterior ovary from vulva × 100/overall body length) = 53 (48–66); stylet = 7.5 μ (7.0–8.5).

(10 ♂♂ *paratypes*): L = 780 μ (685–850); a = 42.5 (38–52); b = 6.8 (6.0–7.6); c = 9.5 (8.3–10.1); c′ = 6.7 (5.8–7.5); T = 65% (50–72); spicules (measured along axis) = 23 μ (21–25); gubernaculum = 75 μ (6–9); stylet = 7.5 μ (7.0–8.5).

(♀ *holotype*): L = 862 μ; a = 43; b = 7.5; c = 11.5; c′ = 6.7; V = 82.5%; G = 60; stylet = 7.5 μ.

(♂ *allotype*): L = 745 μ; a = 41.3; b = 6.7; c = 9.8; c′ = 5.8; T = 67.7%; spicules = 24 μ; gubernaculum = 7 μ; stylet = 7.5 μ.

Description of females.—Body slightly arcuate when relaxed, tapering both directions from near the middle. Lip region truncate, twice as wide as high. Cephalic framework lightly sclerotized. Amphid aperture small, slit-like, near base of lip region. Stylet with small rounded knobs. Dorsal gland orifice about 2 μ behind stylet knobs. Median bulb at about 42% of esophagus from anterior end. Isthmus about three times as long as neck diameter at base of medium bulb. Basal bulb pyriform. Cardia discoid, not extending into basal bulb. Excretory pore and hemizonid opposite posterior half of isthmus to anterior part of basal bulb, at about 11.5% of body length from anterior end. Deirids at level with excretory pore. Nerve ring slightly anterior to mid-isthmus. Cuticle striae very fine, about 0.8 μ apart. Lateral field ¼ as wide as body diameter, marked by four lines at mid-body, the outer ones more distinct than the inner ones. Ovary outstretched with oocytes in single file. Spermatheca not seen. Posterior uterine branch slightly longer than body diameter. Tail 74 μ (69–88) in length, arcuate, with pointed terminus somewhat variable in

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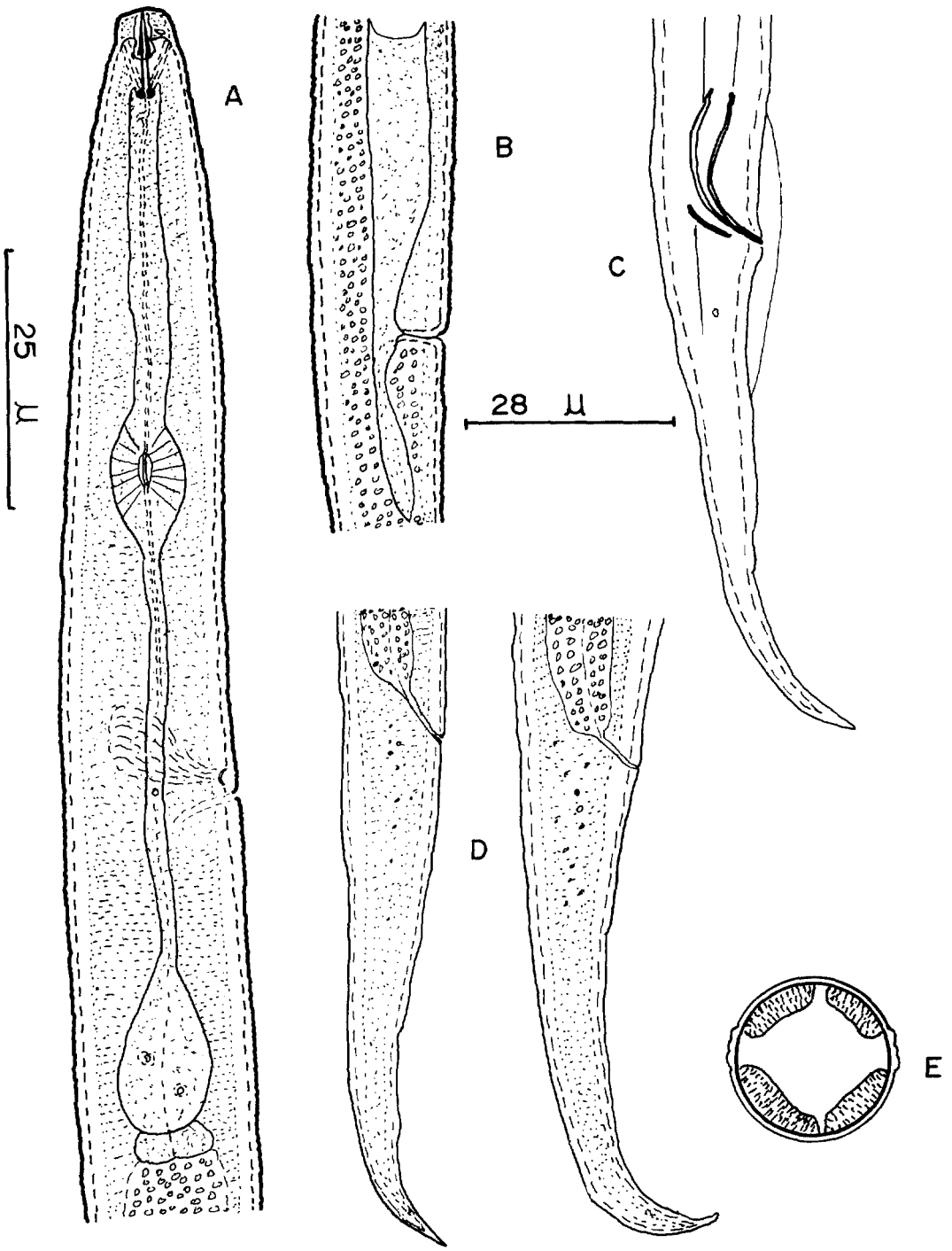

FIG. 1. *Basiroides nortoni* n. sp. **A.** Neck region (lateral); **B.** Vulva region; **C.** Male tail; **D.** Female tails; **E.** Cross section at mid-body to show the four incisures of the lateral field.

form. Vulva-anus distance 62 μ (57–74) long. Phasmids about one anal-body diameter posterior to anus.

Male.—Similar to female in gross shape. Bursa extending about two anal-body diameters on tail. Testis outstretched, extending three to five body-diameters posterior to basal bulb. Spicules arcuate.

Diagnosis.—*B. nortoni* n. sp. can be distinguished from all known species of *Basiroides* (2, 5) by the arcuate tail with pointed terminus, posterior vulva, long posterior uterine branch, and short stylet.

Holotype Female.—U.S.A. Slide No. T-179t. U.S. Dept. of Agriculture, Nematode Collection, Beltsville, Maryland.

Allotype Male.—Slide No. T-180t. Same collection.

Paratype Females and Males.—U.S.D.A. Nematode Collection, Beltsville, Maryland, and Department of Botany and Plant Pathology, Iowa State University, Ames, Iowa.

Type Host and Habitat.—Hagener loamy sand soil around roots of corn, *Zea mays* L.

Type Locality.—John Williams farm, Ollie, Keokuk County, Iowa.

The species name is given in honor of Dr. D. C. Norton, Botany and Plant Pathology Department, Iowa State University, Ames, Iowa.

Tylenchus hageneri n. sp.

(Fig. 2, A–E)

Measurements (10 ♀♀ paratypes): L = 896 μ (750–990); a = 39 (30–45); b = 6.4 (6.0–7.8); c = 5.2 (4.7–5.7); c′ = 11.2 (10.2–17.0); V = 60.0% (55–64); G = 25.5 (20–30); stylet = 13 μ (12–14).

(10 ♂♂ paratypes); L = 856 μ (714–946); a = 40.7 (34–47); b = 6.9 (6.6–7.8); c = 5.0 (4.5–6.1); c′ = 11.8 (10.2–11.8); T = 45% (39–52); spicules = 20 μ (18.0–23.5); gubernaculum = 7.5 μ (7–9); stylet = 13 μ.

(♀ holotype): L = 916 μ; a = 41.5; b = 7.8; c = 4.7; c′ = 15.9; V = 56.6%; G = 26; stylet = 12 μ.

(♂ allotype): L = 845 μ; a = 47; b = 7.8; c = 4.5; c′ = 13.8; T = 40%; spicules = 18 μ; gubernaculum = 7 μ; stylet = 13 μ.

Description of females.—Striae 1.5 μ apart near head but 1.7–2.0 μ near mid-body. Lip region about 1½ as wide as high. Anterior part of stylet shorter than posterior part; stylet knobs large and sloping posteriorly. Dorsal gland orifice 2–3 μ behind stylet knobs. Median bulb fusiform located at 42% of esophagus from anterior end. Isthmus twice as long as neck diameter at base of median bulb. Nerve ring encircling isthmus near its middle. Basal bulb elongate pyriform. Excretory pore and hemizonid at about 11.5% of body length from anterior end. Deirids nearly at level with excretory pore. Vulva without lateral membranes. Ovary outstretched, oocytes arranged in single file. Spermatheca measuring 13 μ long and 11 μ wide, filled with sperms. Egg 59 μ long and 23 μ wide. Posterior uterine branch about ⅔ as long as body diameter. Body tapering from vulva to terminus. Vulva-anus distance 183 μ (149–207) long, slightly longer than tail. Tails of both sexes filiform, 172 μ (154–194) long. Phasmids about two anal-body diameters posterior to anus. Lateral field ⅓ as wide as body diameter, marked by four lines, the outer ones being more prominent than the inner ones.

Male.—Similar to female in gross shape. Bursa extending about two anal-body diameters on tail. Testis outstretched. Spicules arcuate, resting on simple, trough-like gubernaculum.

Diagnosis.—*T. hageneri* n. sp. is distinctive because of the coarse cuticular striae,

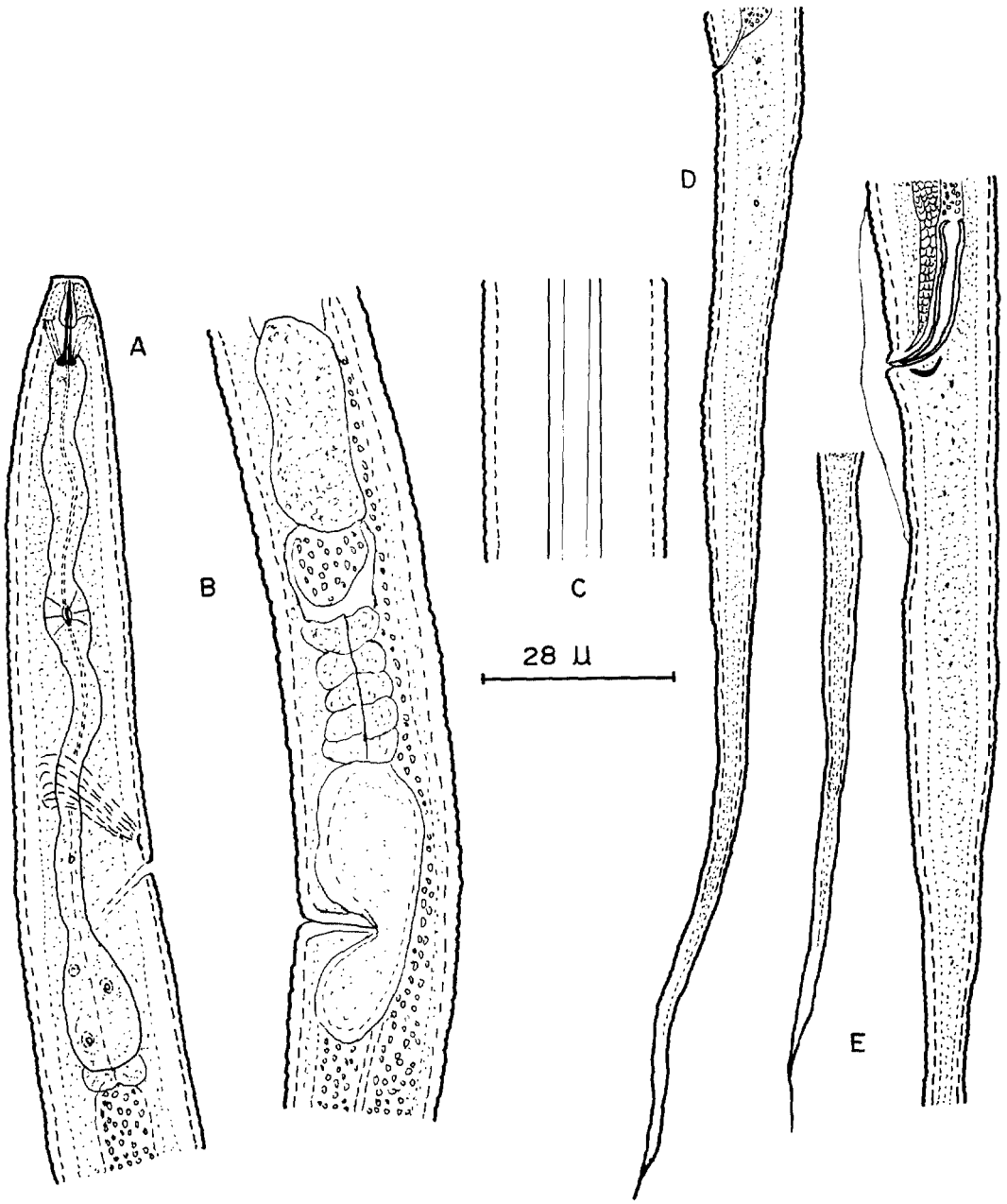

FIG. 2. *Tylenchus hageneri* n. sp. **A.** Neck region (lateral); **B.** Vulva region; **C.** Lateral field; **D.** Female tail; **E.** Male tail.

four lines in the lateral field, filiform tail slightly shorter than vulva-anus distance, and the trough-like gubernaculum. It can be distinguished from the most closely related species, *T. exiguus* de Man, 1876 (1, 4, 5) because *T. exiguus* has very fine striae, tail about equal to vulva-anus distance, posterior vulva position (V = 66%), short body (L = 500–700 μ), and differently shaped gubernaculum. The two lines in the lateral field, the vulva-anus distance 1 and ⅓ times tail length, the fine and obscure striae on most of body, and the absence of males differentiate *T. cylindricus* Thorne and Malek 1968 (5), from *T. hageneri.*

Holotype Female.—U.S.A. Slide No. T-181t. U.S. Dept. of Agriculture, Nematode Collection, Beltsville, Maryland.

Allotype Male.—Slide No. T-182t. Same collection.

Paratype Females and Males.—U.S.D.A. Nematode Collection, Beltsville, Maryland, and Department of Botany and Plant Pathology, Iowa State University, Ames, Iowa.

Type Host and Habitat.—Hagener loamy sand around roots of *Zea mays.*

Type Locality.—John Williams farm, Ollie, Keokuk County, Iowa.

Species name was derived from soil series named Hagener loamy sand.

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