A REDESCRIPTION OF HYPSOPERINE ACRONEA (COETZEE, 1956)
SLEDGE & GOLDEN, 1964 (NEMATODA: HETERODERIDAE),
WITH A NOTE ON ITS BIOLOGY AND HOST SPECIFICITY

BY

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Hypsoperine acronea (Coetzee, 1956), a parasite of the roots of sorghum, is described more fully. It differs from H. graminis Sledge & Golden, 1964, in the following particulars: the obscure perineal pattern, the dimensions of the oesophagus and the tail in the male and the second stage larva, the position of the hemizonid in the larva which is situated immediately anterior to the excretory pore. The parasite caused the formation of rather inconspicuous galls. The growth of the plants was not visibly affected by the infestation. Males were very abundant.

Besides sorghum, H. acronea reproduced successfully on Pennisetum glaucum (L.) R. Br., and a number of grasses. It did not reproduce on groundnuts, and very little on beans and tomatoes.

A description of the plant-parasitic nematode, Meloidogyne acronea, was given by the senior author in 1956. In 1964 Sledge & Golden erected the genus Hypsoperine with H. graminis, a parasite of St. Augustine’s grass, as type species. Meloidogyne acronea, was placed in this genus as the only other known species.

It was felt that a fuller description of H. acronea was desirable but unfortunately a number of slides of specimens in the collection of this Institute deteriorated and greenhouse cultures died out. Attempts to obtain further specimens from the type locality have not as yet been successful. Recently, Dr. M. T. Franklin of Rothamsted Experimental Station, Harpenden, England, very kindly offered to forward specimens from some of the original material which she had in her possession. Type specimens are designated from these.

Photomicrographs and observations made while an active population was available, are included in this description.

Description

Holotype (♀): Length = 1.33 mm; width = 0.63 mm; stylet 13 μ.
Allotype (♂): L = 1.72 mm; a = 49; b = 14; c = 138; stylet 18 μ.
Paratypes: ♀♀ (n = 4): Length = 0.98-1.04 mm; width = 0.53-0.75 mm; stylet 12 μ.
♂♂ (n = 4): L = 1.45-1.87 mm; a = 39-55; c = 138-150; stylet 17-18 μ.
Second stage larvae (n = 10): L = 0.49 mm (0.42-0.49); a = 32 (30-35); b = 5.4 (5.1-5.7); c = 9.4 (8.4-10.3); stylet 11.1 (9.7-12.0) μ.

Female (Figs. 1A, 2).

Body white, oval, posterior end having a slight protuberance. Long projecting neck situated somewhat to one side of body. Cuticle thick, marked by transverse striae which are distinct in neck region and less distinct on distended portion of body. Lip region set off by a very slight constriction. Lip cap present. Cephalic framework indistinct. Basal knobs of stylet well-developed, rounded posteriorly. Dorsal gland aperture 3-4 μ from base of stylet. Oesophagus with elongate cylindrical procorpus and well-developed spherical median bulb with highly refractive valvular apparatus. Arising at base of oesophagus and overlapping the anterior portion of the intestine are three oesophageal glands. Oesophago-intestinal junction obscure. Excretory pore fairly well-defined only in holotype in these specimens, situated anterior to median bulb, approximately midway between median bulb and base of stylet. Intestine degenerate. Ovaries two, greatly convoluted; in mature specimens uterus packed with eggs and filling entire body cavity. Vagina short with thick muscular walls. Anus and vulva situated on posterior protuberance. Perineal pattern extremely obscure (Figs. 3 and 4), in contrast to the distinct one of H. graminis. Phasmids not observed. Eggs deposited in gelatinous matrix, segmentation commencing within body.

Male (Figs. 1B and C).

Body cylindrical, vermiform, tapering gradually at both ends, more so towards head than tail. Tail blunt. Body width 27-41 μ. Lip region marked by very faint striations, not discernable in some specimens. Lip cap present. Cuticle marked by distinct transverse annulations, about 2.5 μ wide in middle of body and decreasing in width towards head and tail. Lateral field with four lines, 6-7 μ wide, not aerolated. Cephalic framework fairly strongly sclerotized. Stylet stout with prominent basal knobs which are posteriorly rounded. Dorsal gland orifice not distinct in these specimens but appearing to be about 3.5 μ posterior to base of stylet. Median oesophageal bulb relatively small, ovoid, with sclerotized valve. Oesophageal glands well-developed. Hemizonid distinct, situated two annules anterior to well-defined excretory pore as in H. graminis. Hemizonion small, situated about eight annules posterior to excretory pore, also as in H. graminis. Intestine packed with refractive granules of varying size. Testis single, distal portion often reflexed on itself. Spicules stout, arcuate, 33-35 μ long, measured along median line. Gubernaculum simple, thin, trough-like, about 8 μ in length. Tail length 10-14 μ. Phasmids on either side of blunt tail tip about 4 μ from tip.

Second stage larva (Figs. 1D, E & F).

Body vermiform, cylindrical, tapering at both ends, particularly the posterior portion. Width 14.7 μ (14-16). Lip region very slightly offset, without visible