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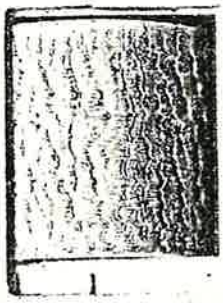

Two new Species of Helicotylenchus Steiner, 1945 (Hoplolaiminae : Nematoda) From Kashmir, India

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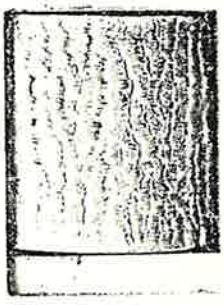
ABSTRACT

Two new species of *Helicotylenchus* Steiner, 1945 are described. *Helicotylenchus kashmirensis* from soil around the roots of Apricot, *Prunus persica* in Srinagar is 0.87-1mm. in length, spear 34-36 microns; lateral fields long and not aerolated, tail longer than anal width, covex, tail annulations not doubling. *Helicotylenchus hazratbalensis* from soil around the roots of Apple, *Pyrus malus* is 0.53-0.65 mm in length, has truncate head with 4-5 annules, anchor-shaped spear knobs, tial dorsally convex, conoid with a ventral projection, striations on tail terminus fine and joining with lateral field.

Cenus *Helicotylenchus* was proposed by Steiner (1945) to include nematodes with oesopeageal glands overlapping intestine dorsally. Sher (1961) found these glands to be overlapping the intestine ventrally, laterally and dorsally, being conspicuously so ventrally.

Golden (1956) included 3 species in *Helicotylenchus*. Sher (1961) listed 11 species for the genus. Later 17 species were proposed for *Helicotylenchus*. Sher (1966) revised *Helicotylenchus* giving a redescription of 18 known species 20 new species and synonymy of 10 species. He also proposed a key to these species.

10 new species of *Helicotylenchus* proposed by Roman (1965) were apparently not possible for Sher (1966) to be referred to in this revision of the genus. 11 more new species have been proposed to this genus. Out of these *H apiculus* Roman, 1965 *H. punicae* Swarup & Sethi, 1961 and *H. impar* Prasad et al, 1965 are regarded as synonyms of *H. erythrinae* (Zimmermann, 1904) Golden 1956, *H. dihystera* (Cobb. 1893) Sher, 1961 and *H. retusus* Siddiqi and Brown, 1964 respectively.



Contrary to earlier view, Sher (1966) did not consider *Helicotylenchus* to be closely related to the genra *Hoplolaimus*, Daday, 1905 *Aorolaimus*, Sher, 1963 *Scutellonema* Andrassy, 1958 *Peltamigratus* Sher, 1963 and *Rotylenchus* Filipjev, 1936 because of the said disposition of oesophageal gland. *Rotylenchoides* whitehead, 1958 was regarded by Sher as most closely related to *Heliocylenchus*, differing only in having a non-functional posterior ovary. Accordingly he transferred *H. neoformis* Siddiqi & Hussain, 1964 to *Rotylenchoides*. He also removed *H. steueri* (Stefanski, 1966) Sher, 1961 and *H. intermedius* (Luc. 1960) Siddiqi & Hussain 1964 from *Helicotylenchus* and transferred them to the genera *Rotylenchus* and *Rotylenchoides* respctively.

Siddiqi (1970) assigned *Helicotylenchus* to the sub-family *Rotylenchoidinae* In 1970, he redefined this sub-family to contain such genera having one or two ovaries. Siddiqi (1972) described 9 (nine) new species under *Helicotylenchus* and proposed key to 70 species of the genus. He also proposed to transfer *Tylenchorhynchus africanus* var. *annobonensis* Gadea, 1960 to *Helicotylenchus* and elevate. It to the rank of a species. Accordingly it is named as *H. annobonensis* (Gadea, 1960) Siddiqi, 1972. To Siddiqi's list are added here 4 species of *Helicotylenchus* described by Fotedar and Mahajan (1973, 1974) and present two new species from Kashmir.

4 species of Helicotylenchus described by Fotedar and Mahajan, *H. graminophilus* is from soil in grass fields of Duksum, Kashmir and Delhousie, Himachal Pradesh, *H. haki* from soil around roots of local cultivar (Haki) of *Brassica oleracea* in Srinagar, Kashmir, *H. Jammuensis*. from soil around the roots of apricot, *Prunus persica* in Jammu and *H. steineri* from soil around roots of maize, *Zea mays* in Srinagar, Kashmir, when compared to the present two news, described from soil around roots of apple and Apricot in Kashmir, are found to be different, as discussed here in.

The specimens of the present collection of *Helicotylenchus* were relaxed and killed in hot water, fixed in 4 % formaldehyde and mounted in dehydrated Glycerine. All the drawings were taken from mounted specimens.

Helicotylenchus kashmirensis sp. nov.

(FIG. (A,C & G)

Measurements :

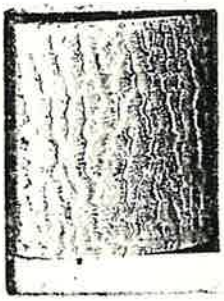
7 Female (paratype) L = 0.84 to 1.0 mm ; a = 30-36 ; b = 4.8-5.2 ; C = 33-38 ; V = 55-62% ; Spear =34-36- microns

Female (Holotype) L = 0.8 mm ; a= 36 ; b = 4.8 ; C = 35 ; V = 55%

Spear = 35 microns.

Description :

When killed by gentle heat body assumed single spiral. Body cylindrical tapering anterioly to rounded head while posteriorly to a cylindrical tail. Body cuticle transversely striated, striations 1.3 microns, apart at mid body interrupted by lateral field, latter marked by four incisures. Cephalic frame work strongly



developed, hexaradiate, its outer margins extending to about 3 body annules posteriorly. Spear 35 microns long with conus 18 microns long, spear knobs indented anteriorly. Vestibulum forming a spear guiding tube extending upto 12 mic form anterior end. Excretory pore located at 120 mic. from anterior end. Hemizonid not observed. Nerve ring located at 100 mic, from anterior end. Spermatheca oval, set off and empty. Rectum abont 1/2 anal body width in length. Tail slightly longer than anal body width, convex, cylindrical bearing distinctly striated striae numbering 15 (14-18 in paratype) on ventral side. Phasmids located 10 annules anterior to anus.

Males : Not found

Type Habitat & Locality : Collected from soil around the roots of apricot *Prunus Persica* Srinagar, Kashmir.

Type Material : Holotype & Paratype deposited with the Deparlment of Zoology, Universily of Kashmir on Slide No: PN/8, A,B & C

Diagnosis & Relationship :

The present form comes close to *H. jammuensis* Fotedar & Majajan, 1974, *H variacaudatus* Yuen, 1964 and *H. vulgaris* Yuen, 1964. From *H. jammuensis* the present form differs in having ronnded shape of the lip region, in the position of excretory pore, absence of Hemizonid, and in the shape of the tail with greater number of tail annules. From *H. variacandatus* it can be further differentiated in having longer body, longer spear, position of phasmid and differently shaped tail. From *H. vulgaris* it further differs in the absence of aerolation in the lateral field, a longer and differently shaped tail and tail annulations not doubling.

In view of the above differences the present form is considered here in to constitute a new species for which the name *Helicotylenchus kashmirensis* is proposed.

Helicotylenchus hazratbalensis sp. nov.

(FIG. B, D, E & F)

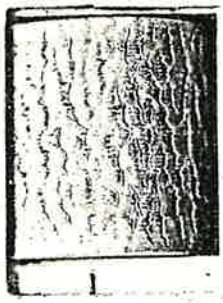
Measurements :

Females (5 paratypes) : L = 0.52—0.65 mm ; a = 20.—25 ; b = 4—5 ; C=40—50 ; V = 59—61% ; Spear = 22—24 microns ; 0 = 31=43

Females (Holotype) : L = 0.62mm ; a = 21 ; b =4—5 ; C = 41 ; V = 60% 0 = 38 ; Spear = 23 microns.

Discription :

Ventrally arcuate assuming single loose spiral when killed. Each striae about 1.2 mic. apart at mid body. Lateral field with four incisures not



aerolated. Head truncate, bearing 4 distinct anuules (4—5 in paratypes). Head frame-work heavily sclerotized, its outer margins extending upto 2 annules posteriroly. Spear measuring 23 microns in length, conus 12 microns long. Spear knobs anchor-shaped. Excretory pore located 120 mic. from anterior end. Hemizonid 2 annules anterior to excretory pore. Nerve ring located at 11 mic from anterior end. Overies with oocytes mostly in single row. Spermatheca off set, without sperms. Phasmids located at anal lattitude (1—3 annules posterior to anns in paratypes). Tail dorsally convex, conoid with a ventral projection, measuring 1.2 (1.1—1.3 in paratype) anal-body-diameters in length, bearing 12 annules cn ventral side. Striations on tail terminus fine and coaleseing with the lateral field (fig. E).

Males : not found

Type Habitat and Locality : From soil around the roots of apple *Pyrus malus* at Hazratbal Srinagar, Kashmir.

Type Material : Holotype and Paratype deposited with the Department of Zoology, University of Kashmir, on Slide No. PN/6, [illegible] & E.

Diagnosis and Relationship :

The present form comes close *H. steineri* Fotedar and Mahajan 1974 and *H. labiatus* Roman, 1965 but differs from the former by the shorter body, truncate shape of lip region, anchor shapd spear knobs, position of Hemizonid, shape of the tail and by the fine striations on tail coaleseing with the lateral field. From *H. labiatus* Roman, 1965 the present form differs in the nature of lateral field in tail region, shape of the tail and position of Phasmids.

In view of the above differences the present form is considered here in to constitute a new species for which the name *H. hazratbalensis* is proposed.

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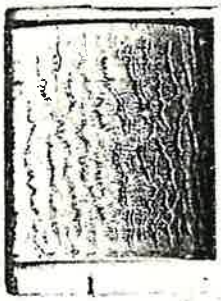
EXPLANATION TO TEXT FIGURES

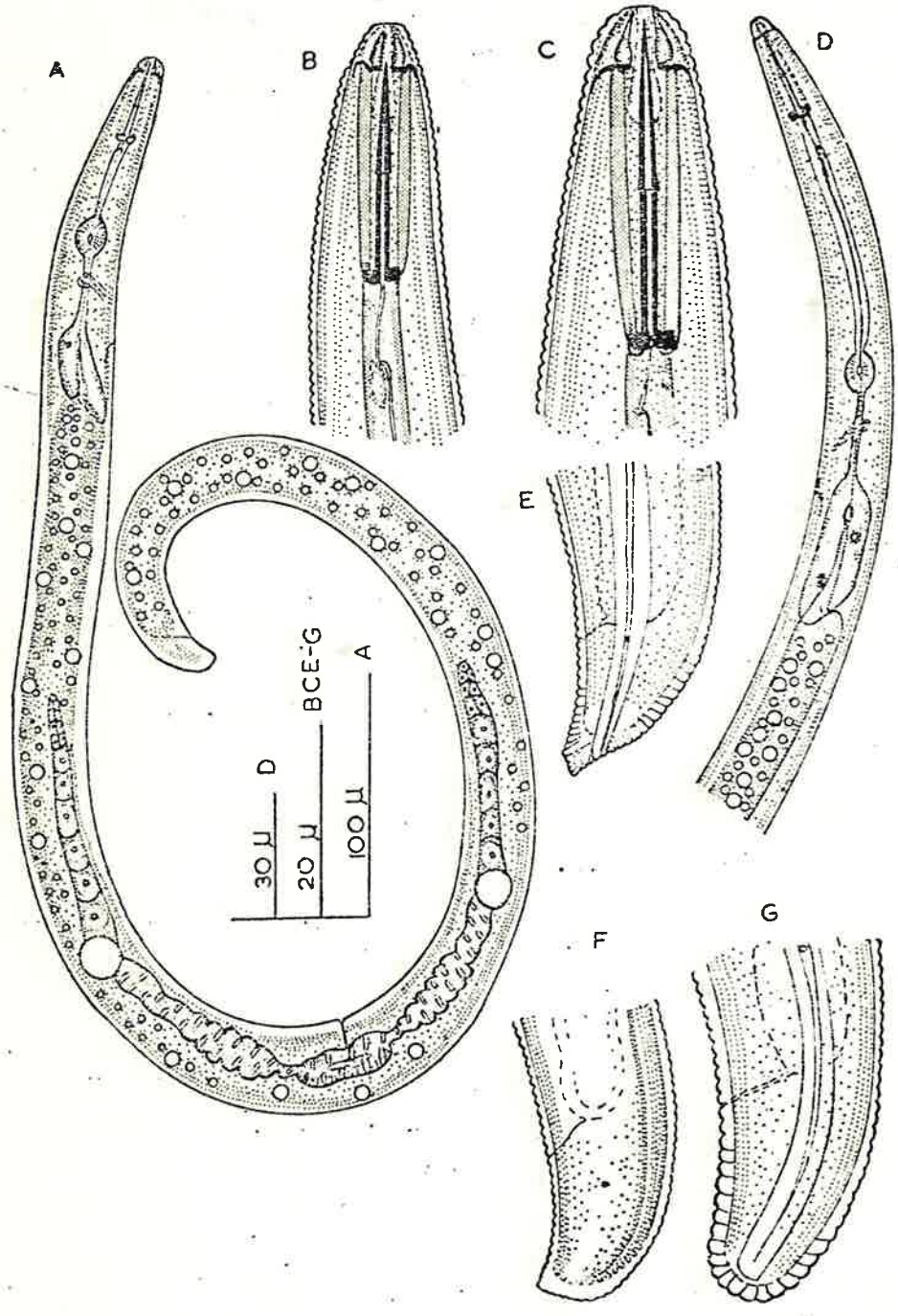
Helicotylenchus kashmirensis n.sp.

A. Female, entire body. C. Hed and of female
G. Tail of female.

Helicotylenchus hazratbalensis n sp.

B. Head end of female, D. Oesophageal region of female
E. Tail of female showing fine striations coaleseing with lateral field.
F. Posterior end of female.




A
B
C
D
E
F
G
30 μ
D
20 μ
BCE-G
100 μ
A