

Centro de Estudios Parasitologicos y de Vectores. Calle 2 # 584. La Plata, 1900. Buenos Aires, Argentina

DESCRIPTION OF AN ARGENTINIAN STRAIN OF *STEINERNEMA FELTIAE* (FILIPJEV, 1934) (NEMATODA: STEINERNEMATIDAE)

by
S. PATRICIA STOCK

Summary. *Steinernema feltiae* (Filipjev, 1934) is recorded for the first time in Argentina. The present strain called "Isabel", was isolated from the white grub *Diloboderus abderus* (Sturm) (Coleoptera: Scarabeidae) at Esperanza, Province of Santa Fe, Argentina. Details of measurements and morpho-anatomy are provided.

The status of *Steinernema feltiae* (Filipjev, 1934) as with other *Steinernema* species, has been controversial for many years. In recent years Poinar, (1986, 1990), Doucet and Doucet (1990) and Nguyen and Smart (1992) have provided useful data and ratios which have permitted a better characterization of *Steinernema* species.

The present paper describes an Argentinian strain, called "Isabel" of *S. feltiae* which was recovered from larvae of *Diloboderus abderus* Sturm (Coleoptera: Scarabeidae).

Materials and methods

Infested beetles were collected in the field and placed in white traps to recover nematodes from the cadavers. Specimens were fixed in TAF and processed to glycerin by Seinhorst's rapid method (1962). Drawings and measurements were made from live and fixed nematodes with a camera lucida microscope and a micrometer in a Zeiss light microscope.

TABLE I - *Biometrics of Steinernema feltiae "Isabel-Strain"*.

Character	Males						Females						Third Stage Juveniles	
	First Generation (n=20)			Second Generation (n=20)			First Generation (n=20)			Second Generation (n=20)			(n=20)	
	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range	Mean	SD
Total length (mm)	1.3	0.7	0.7-1.5	0.95	0.9	0.65-1.10	8.5	5	6.3-10.9	2.37	8	1.95-2.70	0.83	0.07
Width (µm)	54.7	5.3	49-63.4	50.3	4.7	45-67	267	30	190-323	129.5	11	104-153	26.3	2.34
AE-EP (µm) (a)	83.5	3.9	77.5-101	53.6	3.1	48-72	133	29	110-170	102.6	15	84-148	58.4	5.4
AE-P (µm) (b)	140.2	6.2	122-148	115.0	12	105-139	231	37	200-310	172.3	19	144-192	128	6.2
Tail length (µm)	27.6	9.9	16.5-39.7	23.0	4.0	15-33	65	3	49-76	44.5	7	39-53		
Spicule length (µm)	75.0	7.0	70.5-82	60.0	2.0	53-65								
Gubern. length (µm)	47.4	4.0	45-58	41.0	1.7	39-44								
Mucron Length (µm)	10.5	3.0	7.0-16.4	8.0	1.8	7.3-12								
% vulva							52	2	49-53	53	3	50-57		
Ratio A (c)													31.6	2.5
Ratio B (d)													6.4	0.5
Ratio C (e)													11.3	0.9
Ratio D (f)													0.45	0.4
Ratio E (g)													0.8	0.03
													73.2	6.4

(a) Distance from anterior end to excretory pore. (b) Distance from anterior end to pharynx base. (c) Length divided by width. (d) Length divided by AE-P. (e) Length divided by tail length. (f) AE-EP divided by AE-P. (g) AE-EP divided tail length.

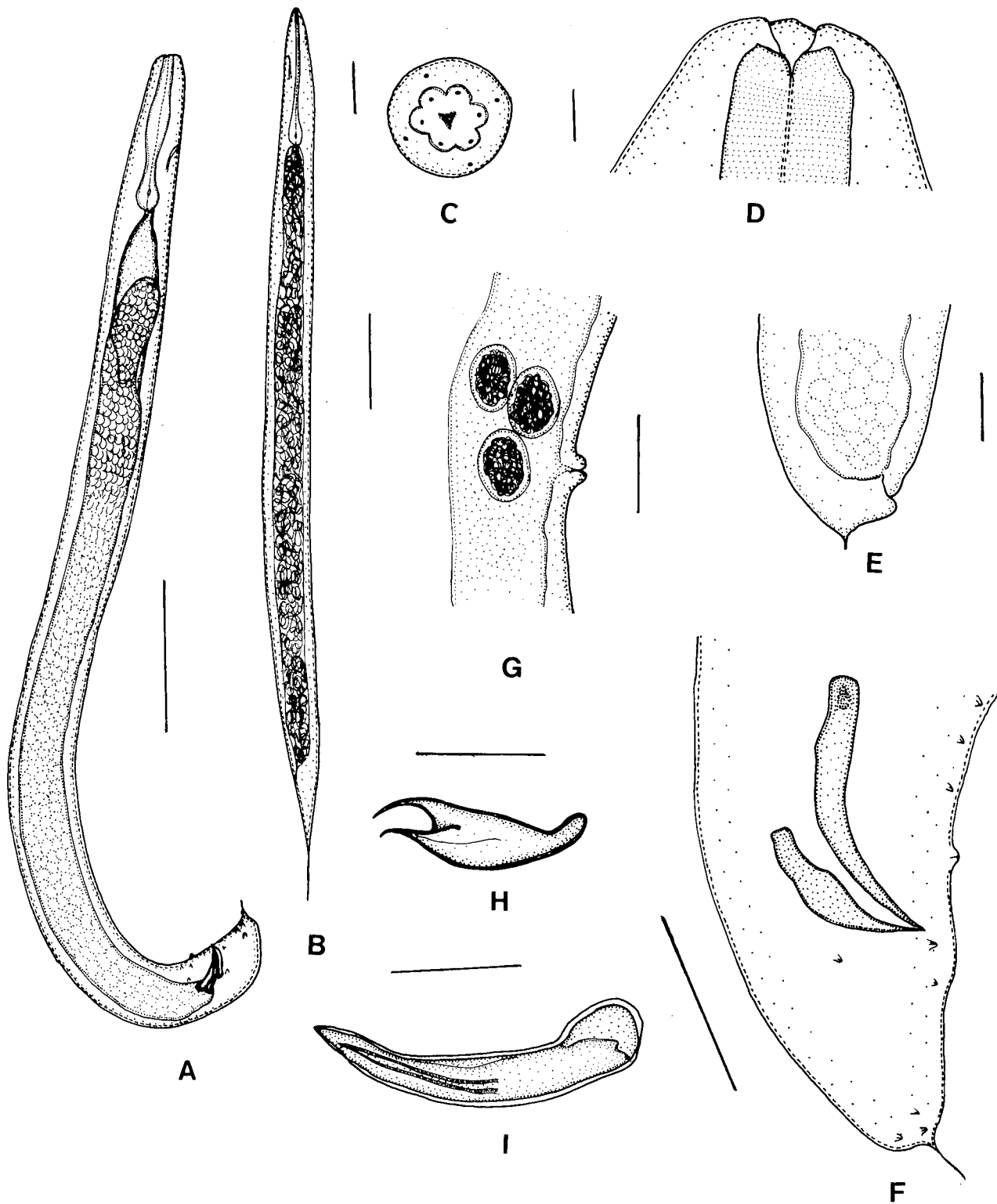


Fig. 1 - *Steinernema feltiae* "Isabel" strain: A, second generation male, in toto; B, third larval stage; C, face view of first generation female; D, anterior region of first generation female; E, tail of first generation female; F, tail of first generation male; G, vulvar region; H, gubernaculum; I, spicula. Scale bars: A = 100 μ m; B-F = 50 μ m; H-I = 25 μ m.

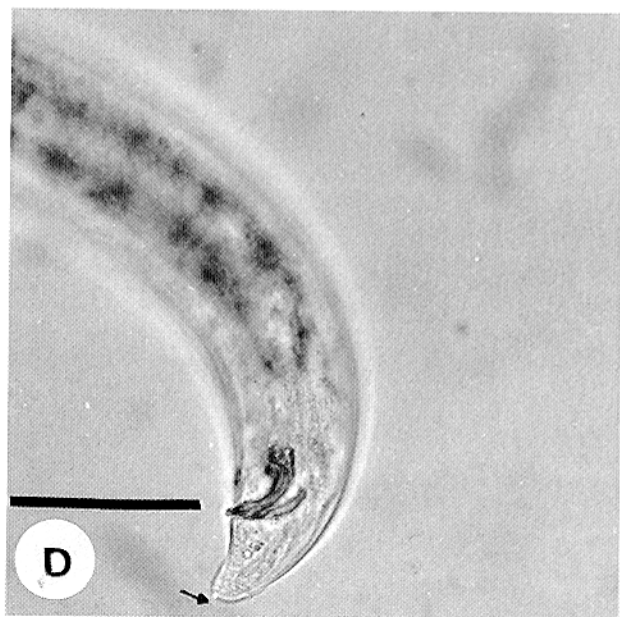
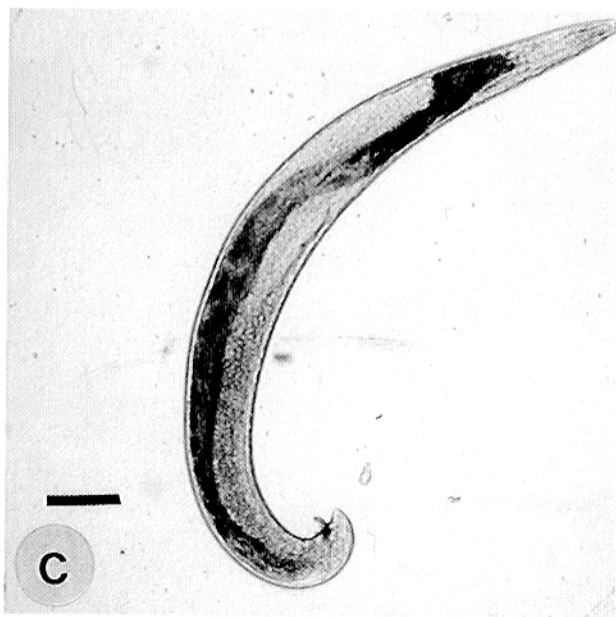
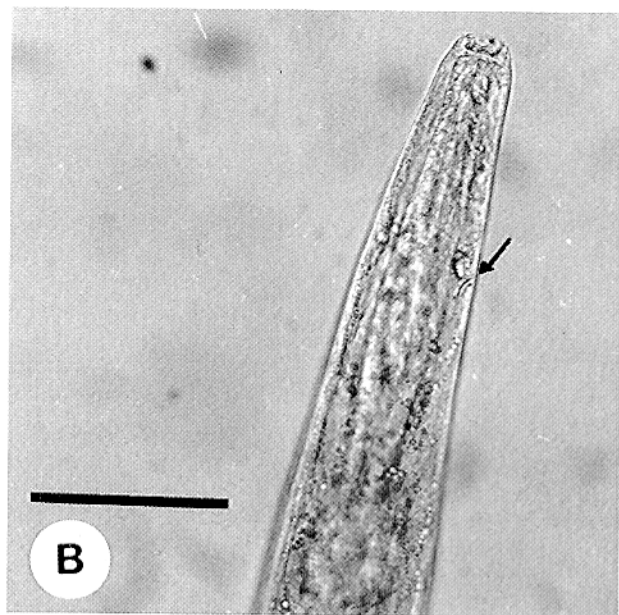
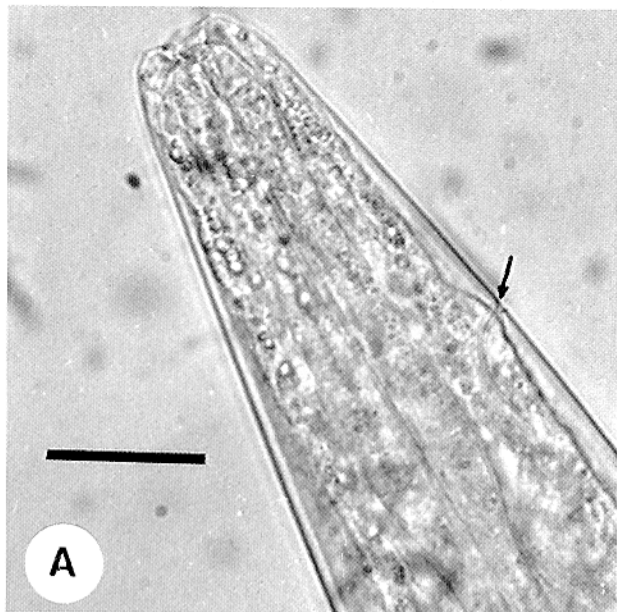


Fig. 2 - *Steinernema feltiae* "Isabel" strain: A, anterior region of first generation female showing excretory pore; B, anterior region of third larval stage showing position of excretory pore; C, adult first generation male; D, tail of first generation male. Scale bars A, B, D = 50 μ m; C = 100 μ m.

Description (Figs. 1-3; Table D)

Adults with smooth cuticle, rounded head, continuous with rest of the body; six lips, each bearing a papilla; lateral amphids inconspicuous; stoma shallow; cheilorhabdions

distinct and cuticularized, prorhabdions and mesorhabdions present, metarhabdions vestigial; pharynx with a slightly swollen metacarpus without valve, followed by a narrow isthmus expanding to a spherical basal bulb with valve; nerve ring surrounding the isthmus portion of the

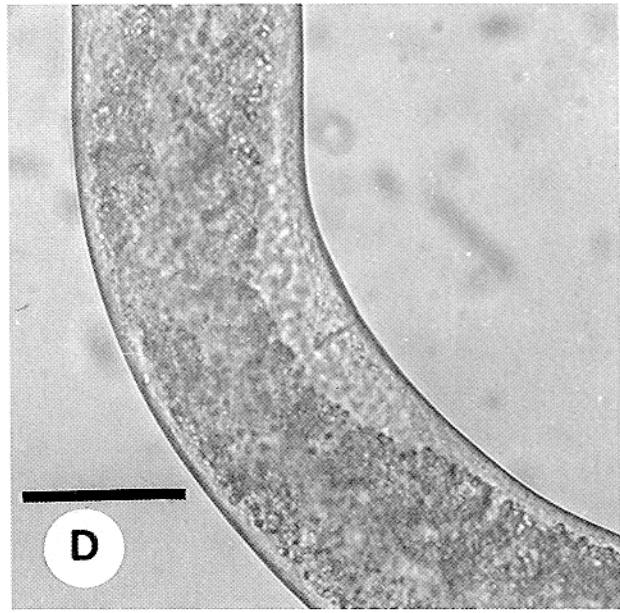
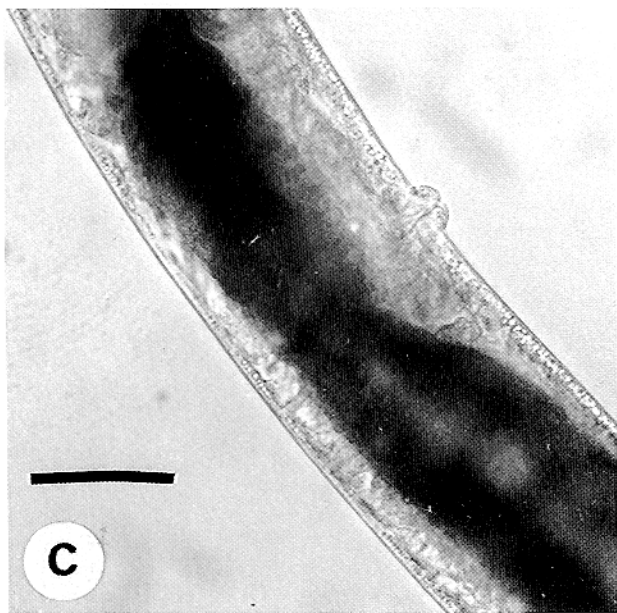
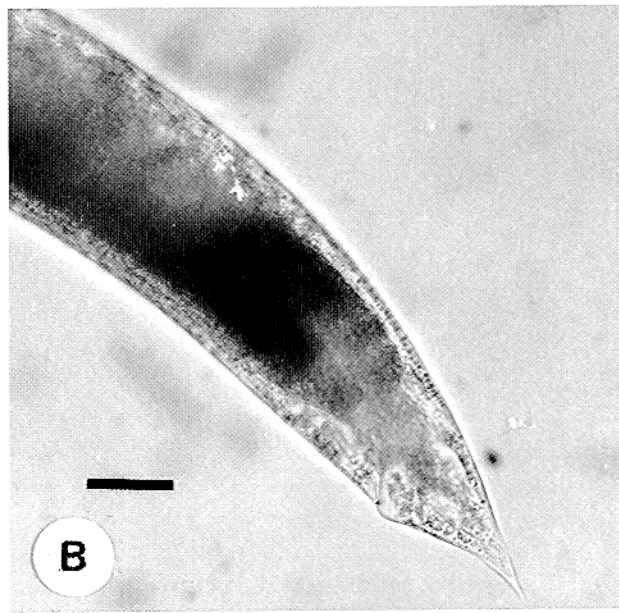
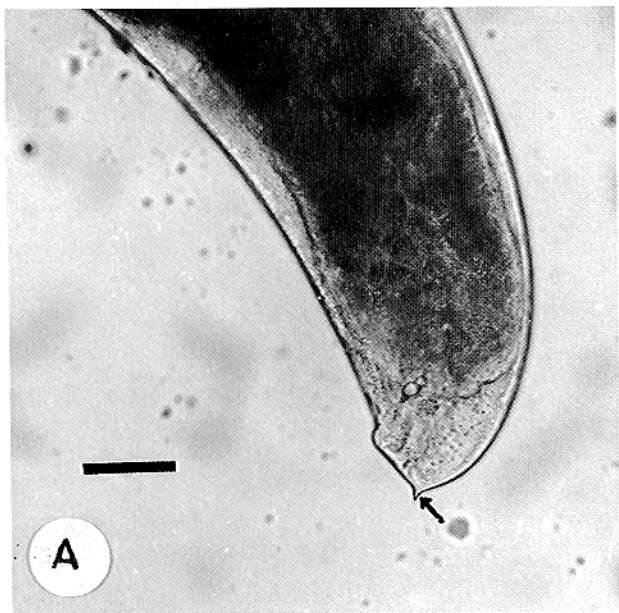


Fig. 3 - *Steinernema feltiae* "Isabel" strain: A-B, variation in tail shape of first generation female; C, vulva of mature first generation female showing protruding lips; D, vulva of young first generation female, without protruding lips. Scale bars A-D = 50 μ m.

pharynx. Distance from anterior end to excretory pore about the double the body width at excretory pore.

Females didelphic, amphidelphic. Ovaries reflexed; vulva a transverse slit located in midbody region; vulvar lips protruding in females with eggs and juveniles in body (Fig. 3 C) but not protruding in young females (Fig. 3 D).

Tail shape variable (Fig. 3 A-B), ventral postanal swelling always present.

Males monorchic. Testis reflexed anteriorly. Spicules paired, yellow orange in colour and ventrally curved. A distinct capitulum and a rostrum, velum absent. Each papilla with two internal ribs. Gubernaculum boat-shaped,

anterior part long, ventrally curved. Genital papillae 23, distributed as 11 pairs and one single one (Fig. 1 F). Tail conoid with a mucron 7-13 μm long.

Fixed specimens are deposited in the Collection of the Center of Parasites and Vectors' Studies (C.E.P.A.V.E.), La Plata, Argentina.

Discussion

After the original description of Filipjev (1934), *S. feltiae* has been redescribed from New Zealand (Bovien, 1937; Wouts, 1980) and Australia (Poinar, 1990) providing more detailed diagnostic characters.

This species is characterized by the shape of the spicules, which are yellow orange and lack a distinct capitulum and rostrum; by the male tail with a mucron ranging from 4-16 μm in length.

Adults of *Steinernema feltiae* can also be separated from *S. carpocapsae* by the location of the excretory pore which is further posterior in *S. feltiae*.

The population described was identified as *S. feltiae* since it shares with this species morphological characters of adults and third stage juveniles.

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