

## Description of a new *Pratylenchus* species from China (Tylenchida, Pratylenchidae)

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**Abstract:** *Pratylenchus ekrami* from maize (*Zea mays*) roots in Shenyang and luffa (*Luffa cylindrica*) roots in Dalian, China, are described in this paper. Nematodes from the two areas were identified consistently, and were characterized by a heavy cephalic sclerotization, extending posteriorly up to two body annuli, stylet 11–13  $\mu\text{m}$  long, elongating conoid tail, and becoming thinner from vulva. Males were not found. *Pratylenchus ekrami* is close to *Pratylenchus vulnus*, but the most critical characteristics between the two species were the number of lip annuli, stylet size, and shape of stylet knobs. This species is the first reported in China.

**Keywords:** Pratylenchidae; *Pratylenchus*; new record species; *Pratylenchus ekrami*

Root-lesion nematodes of the genus *Pratylenchus* (Bajaj & Bhatti, 1984) rank second only to root-knot and cyst nematodes in terms of worldwide economic impact on crops (Sasser & Freckman, 1987). This is due not only to their wide host range, but also their distribution in almost every cool, temperate and tropical environment. *Pratylenchus* species are obligate biotrophic, soil-inhabiting parasites and are found in all agricultural regions of the world (Hunt & Perry, 2007). So far, more than sixty species in the genus have been recorded (Castillo & Vovlas, 2006). *Pratylenchus ekrami* Bajaj & Bhatti, 1984, belonging to Tylenchida, Pratylenchidae has been recorded only in the soil and roots of *Pyrus malus* L. at a horticultural farm in India. Body of the genus is open C-shaped upon fixation and becomes thinner from the vulva; labial framework is sclerotized, extending posteriorly up to two body annuli; stylet is 11–13  $\mu\text{m}$  long and the tail is conoid (Bajaj & Bhatti, 1984). One species was found from maize (*Zea mays*) roots in Shenyang and luffa (*Luffa cylindrica*) roots in Dalian, China. It was identified as *P. ekrami* after morphological studies, and is reported here for the first time.

### MATERIALS AND METHODS

All specimens used in this study were obtained from the soil of maize roots in Shenyang and luffa roots in Dalian, Liaoning Province, which are the first reported occurrences of this species in China. Soil

samples were dissociated by sucrose centrifugation (Chen et al, 2007). Specimens were fixed in FG (8 mL 40% formaldehyde, 2 mL triethanolamine and 90 mL sterile water) for measurement and photographs. First, these specimens were placed on permanent slides. The shape of the females was then observed directly using optical and biological microscopes. The fine structure was observed by using an oil immersion lens. Photographs were taken and features were measured using motic metrology software. Good photos were selected to be drawn.

### RESULTS

*Pratylenchus ekrami* Bajaj & Bhatti, 1984, a new record species in China (Figure 1).

#### Measurements

Female ( $n=10$ ):  $L=422.0-490.0$  ( $449.9\pm 25.20$ )  $\mu\text{m}$ ,  $W=13.7-20.2$  ( $16.9\pm 2.43$ )  $\mu\text{m}$ ,  $a=21.7-33.3$  ( $26.4\pm 4.46$ ),  $b=5.2-6.7$  ( $6.03\pm 0.47$ ),  $b'=3.4-5.2$  ( $4.5\pm 0.85$ ),  $c=15.3-22.6$  ( $18.88\pm 2.34$ ),  $c'=1.6-2.2$  ( $1.83\pm 0.26$ ),  $V=79.9\%-83\%$  ( $81.58\pm 1.07$ ),  $\text{stylet}=11.2-13.1$  ( $12.23\pm 0.74$ )  $\mu\text{m}$ ,  $\text{Tail}=18.7-28.3$  ( $23.48\pm 3.13$ )  $\mu\text{m}$ .

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$L$ : body length;  $W$ : greatest body width;  $a$ : body length/greatest body width;  $b$ : body length/distance from anterior end to junction of oesophagus and intestine;  $b'$ : body length/distance from anterior end to oesophagus end;  $c$ : body length/tail length;  $c'$ : tail length/anus body width;  $V$ : distance from vulva to anterior end $\times 100$ /body length.

### Description

Female: Body opened C-shaped upon fixation. The body became slender from vulval region. Lateral fields with four lines extended to tail terminus. Labial region was continuous with the rest of the body, anteriorly

truncate, and had three annules. Labial framework was sclerotized, extending posteriorly up to two body annuli. Stylets were 11–13  $\mu\text{m}$  long with rounded, sloping knobs. Corpus was long, almost cylindrical. Median bulb was oval. Pharyngeal gland overlapped the intestine. Opening of dorsal was 3–4  $\mu\text{m}$  from stylet base. Nerve ring was located at mid-isthmus. Excretory pore was 74–79  $\mu\text{m}$  from anterior extremity. Hemizonid was just anterior to excretory pore. Spermatheca was elongated oval and filled with sperm. Vulva was a transverse slit located at 77%–83% of body length. Tail was elongated conoid or blunt.

Male: Not found.

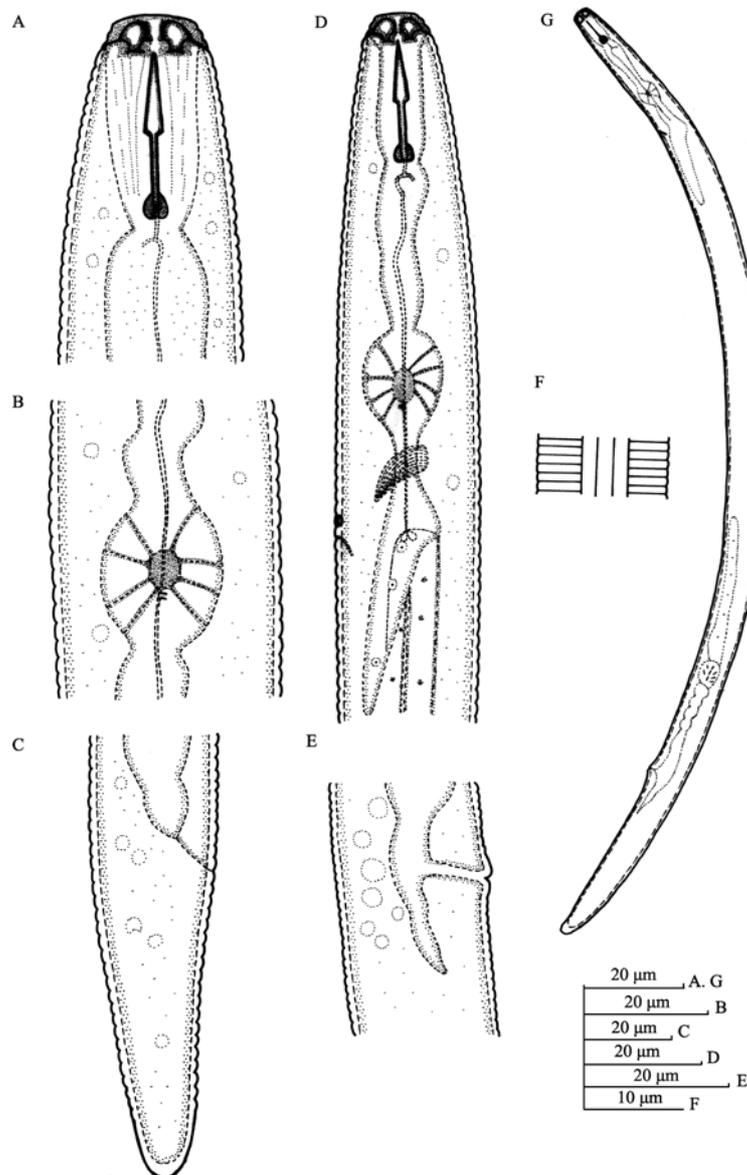


Figure 1 Illustrations of *Pratylenchus ekrami*

A: Female pharyngeal region; B: Tail of female; C: Female labial region; D: Female esophageal bulb region; E: Female vulvar region; F: Lateral field; G: Entire female.

## DISCUSSION

*Pratylenchus ekrami* was close to *Pratylenchus vulnus*, although they differed in shape of labial region, number of lip annuli, stylet size, shape of stylet knobs and median bulb, details of lateral lines and number of tail annuli. *Pratylenchus ekrami* is characterized by: labial region continuous with rest of body, anteriorly truncate, three

annuli, stylet 11–13  $\mu\text{m}$  long with rounded, sloping knobs, tail tip narrowly to broadly rounded. The characteristics of *P. vulnus* are labial region high, lip annuli usually three or four on one side and four on the other, stylet 14–18  $\mu\text{m}$  long, stylet knobs rounded, central band of lateral lines narrower than outer ones, median bulb oval, relatively narrow.

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