

## – Short Communication –

### The occurrence of sixth odontostyle in *Dorylaimoides* sp.

M. CHOUDHARY, W. AHMAD, Q. TAHSEEN AND M.S. JAIRAJPURI\*\*

Section of Nematology, Department of Zoology, Aligarh Muslim University, Aligarh-202002, India

\*\* Corresponding author: E-mail: jairajpurims@lycos.com

The nematodes of the order Dorylaimida possess well developed feeding apparatus that consists of two parts; the anterior one called odontostyle is the actual piercing structure which rests on the posterior part, the odontophore or spear extension. In the suborder Dorylaimina the two parts are axial in position. Like almost all other nematodes, the dorylaims also pass through four developmental stages called juveniles, and are denoted as first (J1), second (J2), third (J3) and fourth (J4) and finally the adult stage. The first stage juvenile, when it hatches from the egg is already fully functional in all respects and it can feed and move about in the soil quite freely. The ability to feed is due to the fact that the odontostyle and odontophore are adequately developed, though these are much smaller as compared to other juvenile stages and the adults. The odontostyle develops in a special cell that is located in one of the two ventro-sublateral sectors of the anterior part of pharynx (Coomans & De Coninck, 1963; Coomans & van der Heiden, 1971; Grootaert & Coomans, 1981; Jairajpuri & Ahmad, 1992). As the first stage grows in size, its odontostyle is cast off or shed at the time of first moulting and is replaced a new. Much before the actual moulting takes place the first replacement odontostyle starts developing in the special cell to become the future functional odontostyle of the second stage. In this way each juvenile stage contains in addition to its own functional odontostyle a replacement odontostyle for the succeeding generation which starts migrating

upwards so as to take its position as the odontostyle for the next stage. The functional odontostyle of each juvenile stage is thus developed in the preceeding stage. After the fourth or final moult, the adult stage is reached which contains a functional odontostyle that has developed in the fourth stage juvenile. At this point of time the special odontostyle forming cell becomes inactive probably due to the hormonal changes. Consequently, the adult stages do not contain/form any replacement odontostyle as the development of further stage ceases after the formation of adults. In those nematodes which usually possess long odontostyles like *Xiphinema*, *Longidorus*, etc., sometimes a spear tip, mucro or vestigium is formed which may be due to the slightly more active spear forming cell (Grootaert & Coomans, 1981) but this structure is minute measuring not more than a few micrometers. Exceptionally, in the genera *Actinolaimus*, *Discolaimus*, *Metadorylaimus*, etc., formation of mucro may also take place because their stylets are usually heavy and the odontostyle forming cell is apparently more active (Coomans & De Coninck, 1963; Coomans & van der Heiden, 1971).

During the course of our study, in one of the samples collected from soil around the roots of palm tree, from the Indian Institute of Science, Bangalore, we found three adult females belonging to the genus *Dorylaimoides* Thorne & Swanger, 1936. Of these, one female was a normal adult but the other two contained an additional, fully formed odontostyle which we are

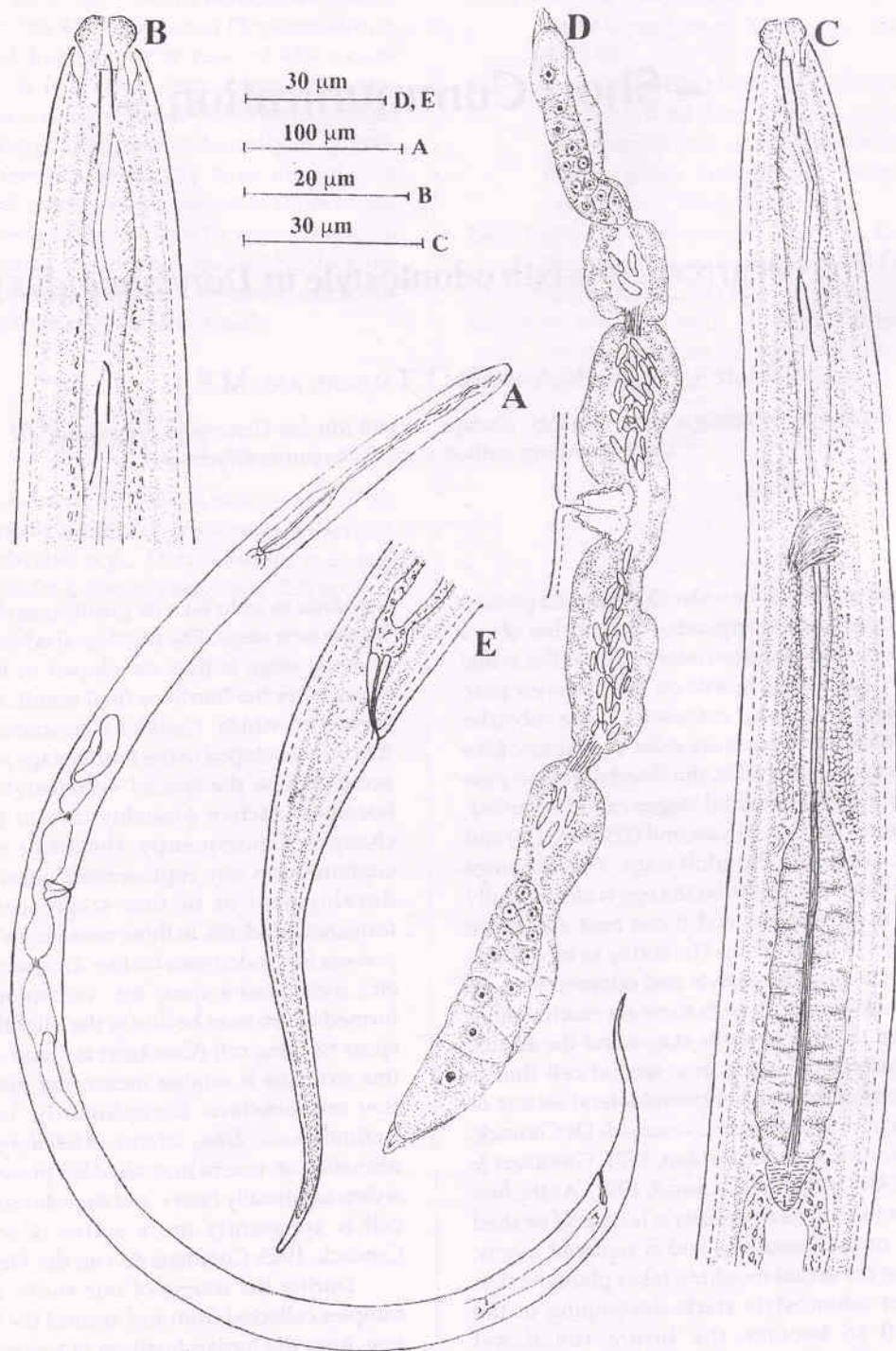


FIGURE 1. *Dorylaimoides* sp. (Abnormal female). A: Entire female. B: Anterior region. C: Pharyngeal region. D: Female genital system. E: Female posterior region.

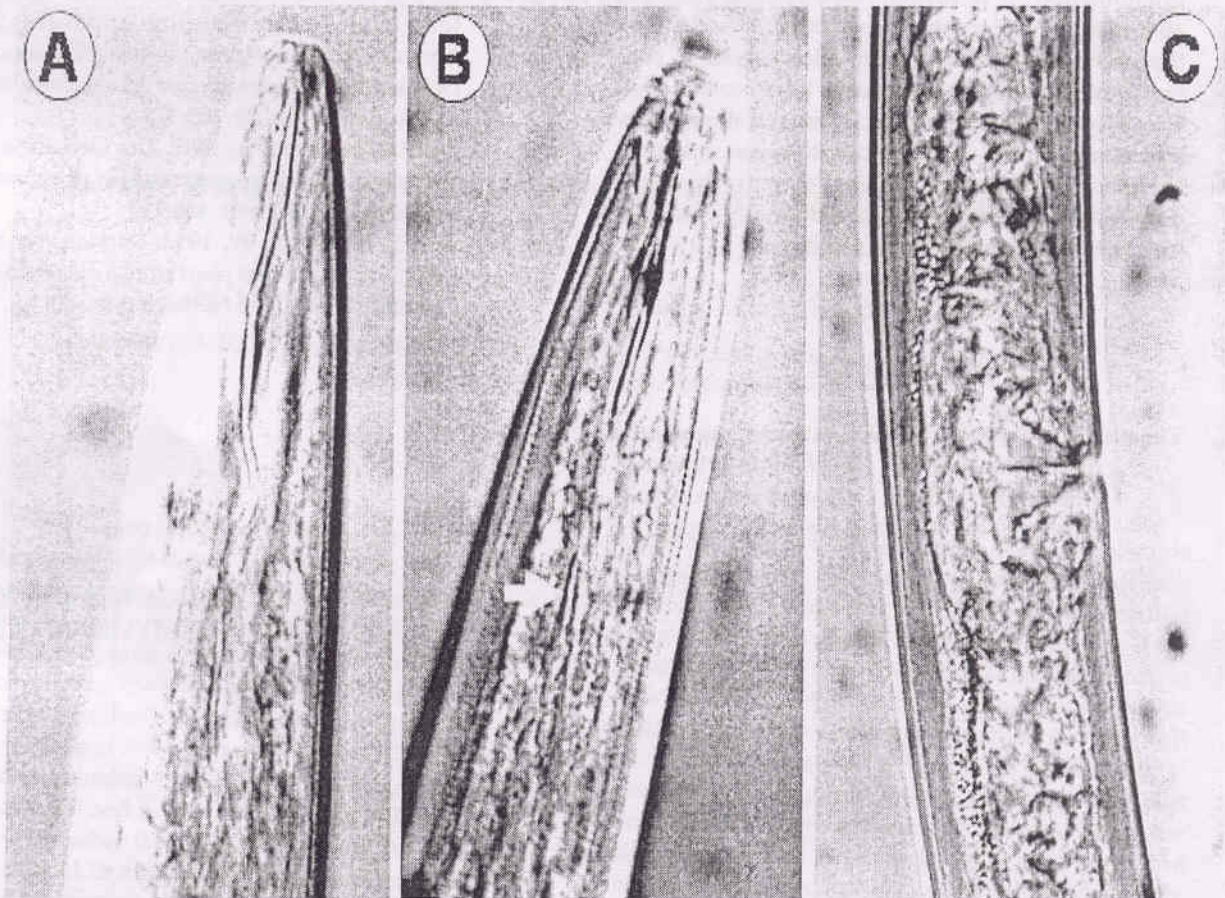


FIGURE 2. *Dorylaimoides* sp. A: Anterior region (normal female). B: Anterior region (abnormal female). C: Genital system (abnormal female).

calling here as "sixth" odontostyle. The formation of an additional odontostyle is amazing as it does not appear to have any function or role due to the fact that the process of moulting has already finally ceased. During our entire research career spanning to over four decades we have never come across such an occurrence. The measurements of the normal female and the two unusual females are given below. All the three females are fully developed and impregnated. The two "abnormal" females are otherwise similar to the third female in all respects.

*Measurements:*

*Normal female:* L= 1.18 mm; a= 38; b=6.8; c=8.7; V=36; Odontostyle 16.5  $\mu$ m (dorsal arm 14.5  $\mu$ m and ventral arm 8.0  $\mu$ m).

*Abnormal females (2):* L=1.17-1.20 mm; a=38; b=6.0-6.2; c=10; V=36-38; Odontostyle 16.5  $\mu$ m (dorsal arm 13.5-15.0  $\mu$ m and ventral arm 8.0-8.5  $\mu$ m); Sixth odontostyle 16.5  $\mu$ m (dorsal arm 15  $\mu$ m; ventral arm 8.0  $\mu$ m).

*Remarks:* The occurrence of a replacement (sixth) odontostyle in two adult females of *Dorylaimoides* sp. is considered here to be a rare of the rarest phenomenon. It is further very strange that this abnormality has occurred in two out of three females that were collected. The spare odontostyles in both the unusual females obviously have no function whatsoever and are considered here as an abnormality which must have occurred due to some unknown reason(s) because of uncontrolled activity of the odontostyle forming cell which normally ceases its function at the time of the fourth moult.

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