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A DESCRIPTION OF A BIVULVAL, DIDELPHIC, PRODELPHIC GRAVID *XIPHINEMA DIVERSICAUDATUM* (NEMATODA: DORYLAIMIDA)

by
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A female *Xiphinema diversicaudatum* (Micoletzky) Thorne with abnormal reproductive apparatus was observed during a collaborative study examining reproduction by longidorid nematodes (Brown and Coiro, 1983). The nematode, from a population from mixed woodland, Inchmartine, Dundee, Scotland, was added as a pre-adult female together with three males and a *Fragaria* × *ananassa* Duch. cv. Cambridge Favourite host plant to a 25 ml plastic pot. After 12 wk three males, twelve first stage and five second stage juveniles and the gravid female were recovered from the pot. The female was killed and fixed in hot triethanolamine formalin (Courtney *et al.*, 1955) by the rapid method of Seinhorst (1966) and mounted in anhydrous glycerol by a slow replacement method.

The morphometrics of the female were: L = 4.9 mm; a = 71; b = 8.1; c = 93; c' = 1.1; V1 (anterior) = 41.7%; V2 (posterior) = 44%; odontostyle = 144 μm; odontophore = 81 μm; anterior to guiding ring = 126 μm; anterior to oesophageal-intestinal junction = 612 μm; tail = 53 μm; body diameter at base of odontophore = 49 μm; body diameter at V1 = 69 μm; body diameter at V2 = 69 μm; body diameter at anus = 49 μm; distance from anterior to V1 = 2.1 mm; distance from anterior to V2 = 2.2 mm; distance from V1 to V2 = 114 μm; length of anterior genital tract = 1.1 mm; length of posterior genital tract = 1.6 mm.

The specimen is deposited at the Istituto di Nematologia Agraria del C.N.R., Bari, Italy.

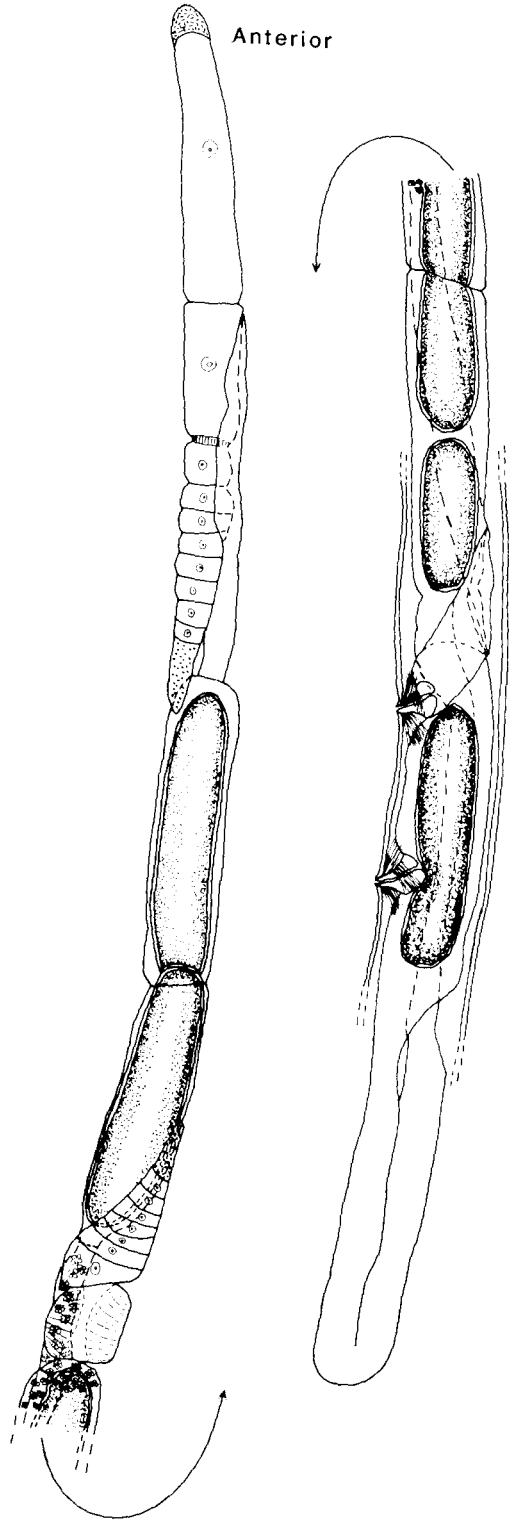

Fig. 1 - The reproductive tracts of a bivulval, didelphic, prodelphic, gravid *Xiphinema diversicaudatum*.

The specimen was morphologically similar to other females from the population except for the atypical reproductive apparatus (Fig. 1) which comprised two discrete, apparently functional, vulvae each with an accompanying ovijector; an inter-vulval duct connecting the anterior and posterior ovijectors contained an egg (175 × 38 μm) posterior to the anterior vulva, overlying the posterior ovijector. The anterior reproductive tract was fully developed and contained two eggs (179 × 38 μm; 175 × 38 μm) in the proximal end of the oviduct and spermatheca. The posterior genital tract was fully developed, reflexed 393 μm posterior to the posterior vulva, and contained two intrauterine eggs (105 × 38 μm; 186 × 38 μm); there was a median constriction of the posterior egg caused by the proximal sphincter of the pseudo-Z differentation; the posterior of the egg was indented by the presence of apophyses in the pseudo-Z differentiation. The distal end of the ovary of the posterior genital branch was 650 μm anterior to the anterior vulva; the proximal end of the posterior pseudo-Z differentiation and the distal end of the anterior pseudo-Z differentiation overlapped 370 μm anterior of the anterior vulva.

Several authors have reported the existence of bivulval specimens in several nematode genera, including *Longidorus* in the *Dorylaimida* (Azizova, 1969; Geraert, 1963; Jairajpuri and Ahmad, 1969). Also, a few female specimens from species in the genus *Xiphinema* have been reported to have abnormal genital tracts including two *X. diversicaudatum*, from a population from Spain, which were didelphic, prodelphic (Bajaj and Jairajpuri, 1977; Arias, 1978; Khan *et al.* in Arias, 1978). Coiro and Lamberti (1980) reported a female *X. vuittenezi* with two vulvae but the vulvae were not interconnected and only the anterior genital tract from the anterior vulva was fully developed and functional. This report is the first record of a bivulval *X. diversicaudatum* and that bivulvarity and didelphic, prodelphism did not prevent the female from breeding and producing progeny.

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