Annales Soc. r. Zool. Belg. — T. 108 (1978) — fasc. 1-2 — p. 75 — Bruxelles 1979

NEW AND KNOWN GONADAL CHARACTERS IN FREE-LIVING NEMATODES AND THE PHYLOGENETIC IMPLICATIONS

by

Sievert LORENZEN
Zoologisches Institut der Universität,
2300 Kiel, Bundesrepublik Deutschland

SUMMARY

Ovarian structure, number of ovaries and testes, and their position relative to the intestine are demonstrated to be relevant for reconstructing phylogenetic relationships within free-living nematodes. About 600 free-living species of the Adenophorea and the Secernentea from marine, limnic and terrestrial biotopes have been studied, and descriptions of nearly all free-living species of the Adenophorea and many free-living Secernentea have been checked.

Ovarian structure : The terms « antidromously reflexed ovaries » and « homodromously reflexed ovaries » are introduced to distinguish two types of reflexed ovaries. In the first type the whole ovary (germinal and growth zone) is bent against the oviduct backwards to the vulva, and the ova move to the point of flexure with one pole and to the vulva with the other one. In the second type the germinal and only a part of the growth zone is bent backwards to the vulva, and the ova move with one and the same pole first to the point of flexure and then to the vulva. The ovaries are antidromously reflexed in all Adenophorea (providing they have reflexed ovaries) and in the Diplogasteridae, homodromously reflexed in all Rhabditida (except Diplogasteridae), and outstretched in many Adenophorea and all Tylenchida.

Number of ovaries and testes : It is demonstrated that the presence of two ovaries and two testes has to be regarded as plesiomorphic within nematodes.

Position of the gonads relative to the intestine : This is a new character introduced into nematology. The gonads may be arranged anteriorly right and posteriorly left, anteriorly left and posteriorly right, anteriorly and posteriorly right or anteriorly and posteriorly left to the intestine or the gonoduct. The position may be either variable or constant within a species. There are species which display all four arrangements. Other species show only the first two arrangements, while again others have realized only the last two ones. Finally there are species which display only one of the four possible arrangements. In many taxa of higher rank this character is highly constant.

It is concluded that the Adenophorea, as they are presently understood, contain quite a lot of polyphyletic taxa from generic to order rank.

The full-length paper is published in *Z. zool. Syst. Evolut.-forsch.* **16** (1978), 108-115.