MORPHOMETRIC RELATIONS IN NEMATODES

BY

E. GERAERT

Instituut voor Dierkunde, Universiteitsstraat 14, Gent, Belgium

In descriptions of nematodes it is often customary to use the ratio between two well-defined distances rather than the absolute measurements of the same distances. The most widely used ratios are a, b, c, V and T. Examinations have proved that it is advisable to discard some of them; details are mentioned under Conclusions, p. 182.

By looking for new ratios and by checking the widely used ones I realized that most of them are meaningless. This problem is not new and I am certainly not the first one to see it; nevertheless there is not much to be found about it in the current nematological literature. As far as I know only Wu (1960) in a study on *Ditylenchus destructor* came to the conclusion that the use of the ratios b, and for females also c, was unsupported by her data. Taylor & Jenkins (1957) in their study on four *Pratylenchus* species and Coomans (1962) in his study on *Rotylenchus goodeyi* showed that the b and c-values have very wide ranges of variability. In Clark's opinion (1962) those ratios must be regarded as an approximation. Brzeski (1963) came to the conclusion (in a study on a *Eudorylaimus* sp.) that value a has little taxonomic value, but that on the contrary values b, c and V are more constant. Sturhan's (1963) studies on *Longidorus* and *Xiphinema* were more concerned with the changes in relations during development; his results for the adults, however, show that in most cases allometry is the rule. Despite these views the ratios a, b, c, V and T have almost acquired the status of law and much work is done to calculate them as precisely as possible.

When only the value for the ratio is mentioned and not the original measurements, people might think that the ratio has a much greater diagnostic value than the separate measurements from which it has been calculated. It has been widely accepted that by using ratios the variability between individuals is — although not excluded — certainly diminished.

Using our measurements of some Tylenchs and the results obtained by other authors the usefulness of some ratios will be discussed.

The length of the oesophagus

Ratio b is obtained by dividing the body length (L) by the distance from the anterior end to the end of the oesophageal lumen (= oes). This is the most commonly used oesophagus length; of course it includes the stoma, (the length of which is independent of the oesophageal length) but an unambiguous distinction
Fig. 1. The relation between body length (L) and oesophageal length (oes): A. *Rotylenchus* goodeyi; B. *Basiria gracilis* (the smaller dots represent the specimens of one population, the larger circles specimens of another population), C. *Ditylenchus destructor* (two populations), D. *D. dipsaci* (three populations).