

ON THE IDENTITY OF "MACROPOSTHONIA ANNULATA"
(NEMATA : CRICONEMATIDAE) DESCRIBED FROM SPAIN

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Luc and Raski's (1981) and Coomans' *et al.* (1990) proposal to consider *Macroposthonia* de Man, 1880 a *genus dubium* and *M. annulata* de Man, 1880 a *species dubia* was not followed by Escuer *et al.* (1991). They found a criconematid population in Spain of which the male was very similar to the one described by de Man in 1880 and drawn by him in 1884.

In Coomans *et al.* (1990) it was argued that the synonymy of *Criconemoides kirjanovae* Andrassy, 1962 with *M. annulata* proposed by De Grisse and Loof (1965) was questionable because several characters of the male – no female was described by de Man – were sufficiently different to prevent them from being recognized as the same species (for details, see Luc and Raski, 1981). Among them de Man (1884) drew only two lateral lines while four are noticed in *C. kirjanovae*. The fact that only two lines are present in the Spanish population brought Escuer *et al.* (1991) to conclude that their population was more likely to be *M. annulata*.

The study of their material, sent to M. Luc and P. A. A. Loof (Wageningen, The Netherlands), revealed that their observations were correct but that on one of their slides, containing three males, two were of the *annulata* - type (called here "*annulata*") and one distinctly different; this male has not been identified and is herein designated the "other male".

Characteristics of criconematid males

As it is often mentioned criconematid males offer few characteristics to be used in taxonomy. However, the study of the Escuer slide and the comparison with former studies suggest that the following details can be important.

– *The protrusion of the cloacal lips* : this is present in all Escuer's males as a 4 µm long and 3.5 µm wide, posterior projection, posteriorly strongly offset by a body contraction. The "*annulata*" males have the anterior lip

much thinner than the posterior lip, the other male has almost equal lips (on the anterior lip a 1.5 µm hair like appendage is present : it can be an artifact or a sensillum).

– *Width of lateral field* : in all Escuer's males the lateral field is 2.5-3 µm wide, i.e. 1/8 of corresponding body width in the "*annulata*" males and 1/6 in the other male. There is a slight widening of the lateral field to 3.5 µm anterior to the cloaca in some "*annulata*" males but in other "*annulata*" males and in the other male the lateral field is of the same width throughout.

– *Number of lateral lines* : the lateral field in all these males consists of a strong protrusion of lateral cuticle 1.5 µm outside the body contour with parallel walls; in the usual lateral view this results in very distinct outer edges of the lateral wing with the thickness of the outer cuticular layer shining through. The appearance of the cuticular layer suggests two inner lines but surface view, scanning electron microscope and sectioning shows no such inner lines in "*annulata*" males. The other male shows a delicate inner line, giving three lateral lines.

– *Tail shape at level of the lateral field* : the lateral field stops 15-20 µm before the tail end. The tail is ventrally flattened; in the usual lateral view the lateral field seems to be more ventral than lateral. In the "*annulata*" males the tail is sloping throughout (conical tail) so that in lateral view the lateral wing precedes the ventral outline, suggesting a bursa in the posterior half of the tail.

– *Tail shape posterior to the lateral field* : in the "*annulata*" males the tail top is conical with a long thin extension and with the annuli gradually disappearing; in the other male the tail top is also conical without an extension and the top is deeply incised by the annuli.

– *Tail curvature* : the "*annulata*" males have a strongly ventrad curved tail (C-shape); the other male has a slightly ventrad curved tail.

– *Head shape* : all males have a broadly rounded head

end; in the "annulata" males the front can be flattened, giving a truncate appearance; there is no flattening in the other male. Moreover, in "annulata" and "other male" the body annulation begins rather close to the anterior end, whereas unusually far in de Man's type.

Not different are shape, length and position of spicules and gubernaculum (spicules and gubernaculum are present in the protruding cloacal lips); also not different is the general body posture (curved ventrad, more so posteriad).

Comparison with data from de Man (1880, 1884)

Similar structural details : the protrusion of the cloacal lips, the width of the lateral field anterior to the spicules, absence of inner incisures in the lateral field, tail curvature, tail terminus shape posterior to lateral field.

Disimilar structural details : the lateral field anterior to the cloaca widens in such a way that the ventral body contour is covered (in de Man's fig. of the tail, not so pronounced in his total view); the tail is apparently less flattened as the lateral wing does not precede the ventral outline; the tail top is well annulated; head is conical with a slightly offset truncate front (the head narrowing is considerably : the front is 37 % of the diameter at the beginning of the head narrowing); the "high" head is not annulated; the position of the excretory pore (at 105 μm in de Man's drawing against 135-147 μm in the Spanish population).

In conclusion : Escuer's "annulata" males are more similar to de Man's male than De Grisse and Loof's (1965) males but head shape, anterior annulation, details in the tail region and position of the excretory pore do not permit synonymy.

Comparison with "Criconemoides" kirjanovae Andr ssy, 1962

In the original population no males were present. De Grisse and Loof (1965) identified populations from Germany, Belgium and the Netherlands with females and males as the same species because of the similarities with the females. The males were identified as *Macroposthonia annulata*, a conclusion withdrawn by Luc and Raski (1981) and by Coomans *et al.* (1990).

Andr ssy's (1962) *kirjanovae* females had the last tail annulus distinctly offset in contrast to the females studied by De Grisse and Loof (1967) which have a more amalgamated top. Escuer's *et al.* (1991) females have the distinctly offset terminal annulus.

Comparison with "Macroposthonia" annulatifformis De Grisse & Loof, 1967

This is the species found in the type locality of *M. annulata*. Escuer's females have the larger body, longer

spear and higher number of annuli of *M. annulatifformis*; the males have a similar "short, sometimes offset, terminal appendage".

The male has, however, four lines in the lateral field and the female tail top is often lobed (Escuer's males have two lines and the female tails are never lobed). Loof (pers. comm.) identified Escuer's population tentatively as *annulatifformis*.

Discussion and conclusion

Andr ssy's (1962) *kirjanovae* females, De Grisse and Loof's (1965) *kirjanovae* populations, De Grisse and Loof's (1967) *annulatifformis* populations together with *Criconemoides raskiense* De Grisse, 1964 and Escuer's *et al.* "annulata" are very similar by head structure, elongated female tail and ventrally bent male tail with projecting cloacal lips.

This overall resemblance suggests that the number of lateral lines in these males (and by extension in males of criconematids) is perhaps a less important character (two in Escuer *et al.*, 1991, four in the others).

The presence in the same sample of a slightly different male that resembles males of some *Criconema* species suggests on one hand that males do not support the generic differences based on female and juvenile characteristics, on the other hand that detailed study of the males can yield interesting results, as formerly noted by Loof (1988).

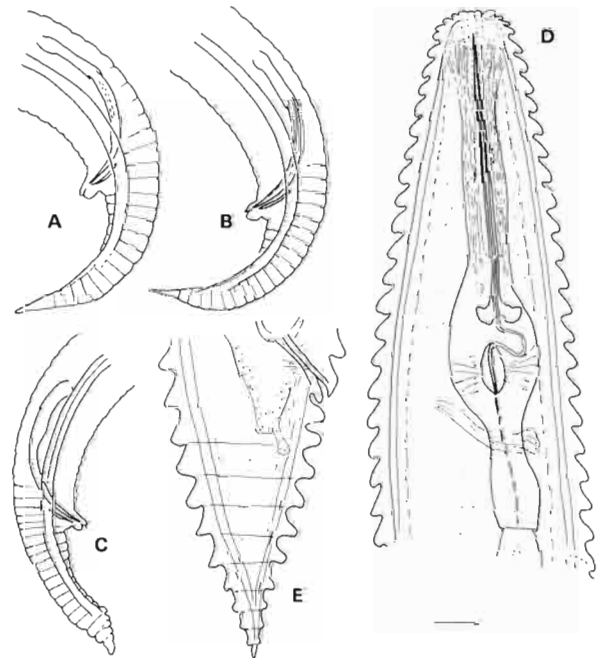


Fig. 1. "Macroposthonia annulata" apud Escuer *et al.* (1991). A, B : Male tails; D : Anterior end of female; E : Posterior end of female. - *Criconema* sp. C : Male tail. (Bar = 10 μm .)

Because of the morphological differences between de Man's *annulata* male and Escuer's *et al.* (1991) population these Spanish nematodes cannot be considered as *Macroposthonia annulata*. It appears to be an undescribed species.

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