

Notes brèves

ON THE NOMENCLATURE OF THE GENUS *NEOAPLECTANA* STEINER, 1929
(STEINERNEMATIDAE : RHABDITIDA) AN THE SPECIES *N. CARPOCAPSAE* WEISER, 1955

George O. Poinar, Jr. *

In 1955, Weiser described *Neoaplectana carpocapsae* from codling moth (*Carpocapsa pomonella* L.) larvae in Czechoslovakia. Since this discovery, many geographical strains of this species have been recovered throughout the holarctic region (Poinar, 1979).

Several recent proposals have sought to synonymize the genus *Neoaplectana* and the species *carpocapsae* on the basis of re-discovering populations of earlier described species (Wouts *et al.*, 1982; Stanuszek, 1974). The reason why these proposals are unacceptable to the present author are discussed below.

In 1974, Stanuszek published a detailed study on a species of *Neoaplectana* isolated from unidentified caterpillars of the subfamily Agrotinae and identified as *N. felliae* Filipjev, 1934 (Stanuszek, 1970; 1974). The original *N. felliae* had been described from the armyworm *Agrotis segetum* in Eastern-Russia by Filipjev (1934). Stanuszek (1974) successfully crossed his newly identified *N. felliae* with *N. carpocapsae* and since he could find no morphological differences he concluded that the two nematodes were synonyms and that *N. felliae* Filipjev, 1934 should replace *N. carpocapsae* Weiser, 1955. The present author would like to raise the question of how Stanuszek knew that he had isolated *N. felliae* and not just another strain of *N. carpocapsae*? Because of the wide host range of these nematodes, host specificity, even if it was established here, would not be enough of a criterion to show conspecificity. Strains of *N. carpocapsae* have been collected from surface crawling Lepidoptera as well as from soil infecting Coleoptera (Poinar, 1979). One important point is that the description of Stanuszek's *felliae* did not agree completely with Filipjev's *felliae*. The distance from the head to the excretory pore, one of the few quantitative measurements that has some validity in this genus, does not overlap in the two populations: it is cited by Filipjev as 180 μm in the female and 120 μm in the male whereas Stanuszek gave a range of 92-170 in the female and 50-101 in the male. Another character shown by Filipjev in his description of

N. felliae was a mucron measuring 12-13 μm on the male tail. In contrast, the mucron on Stanuszek's male is only 4 μm . The present author has observed that the size of this mucron is fairly constant in *Neoaplectana* species. The present author's interpretation of Stanuszek's study is that he re-isolated not *N. felliae* but another population of *N. carpocapsae*.

Another recent proposal has been to synonymize *Neoaplectana* Steiner, 1929 with *Steinernema* Travassos, 1927 (Wouts *et al.*, 1982). These authors claimed to have re-discovered *Steinernema kraussei* Steiner, 1923 from the type host, *Cephalcia abietis* (L.), and in comparing this population with species of *Neoaplectana* and a type specimen of *S. kraussei* could find none of the differences pointed out by Steiner (1923, 1929) to separate *Steinernema* from *Neoaplectana*. Again, the question is whether Mraček (1977) in actuality did re-isolate the original *Steinernema kraussei* or whether he isolated another *Neoaplectana* species. Members of the latter genus are known to parasitize members of this host genus (Georgis & Hague, 1981). Hybridization experiments apparently were not performed to determine if Mraček's *kraussei* would cross with any of the existing *Neoaplectana*. As mentioned earlier, the host range of the steinernematids is quite extensive and one should not base identity on infection of a particular insect host.

One of the characters in question is the number of head papillae. Wouts *et al.* (1982) have demonstrated a pattern of six labial and four cephalic papillae for *Neoaplectana*, but their figure 1 G of the type specimen of *S. kraussei* is not convincing in showing a similar circle of six labial papillae for this taxon.

Other characters which Steiner (1923, 1929) discussed as separating the two genera were only briefly mentioned by Wouts *et al.* (1982). One of these was the absence of a valve in the basal portion of the pharynx in *Steinernema* in contrast to a faint valve in *Neoaplectana*. This character is difficult to evaluate, but was emphasized by Mraček (1977) in his discussion of *S. kraussei* as a good character separating the genera.

* Division of Entomology and Parasitology, University of California, Berkeley, Ca 94720, USA.

Regarding the copulatory papillae, it is surprising that Steiner (1923) would have missed nine pairs of anal papillae during his description of *S. kraussei*, especially since he illustrated the full complement of 23 in his later description of *N. glaseri* Steiner, 1929.

Other characters, such as the absence of any swelling of the median portion of the pharynx, the shape of the spicules, suggest to the present author that *Steinernema kraussei* may well be a distinct entity and that synonymizing *Neoaplectana* with *Steinernema* at this time is premature.

Thus, the genus *Neoaplectana* should stand and the species *N. carpocapsae* should continue to be used until additional evidence indicates otherwise.

REFERENCES

- FILIPJEV, I. N. (1934). Miscellanea Nematologica 1. Eine neue Art der Gattung *Neoaplectana* Steiner nebst Bemerkungen über die systematische Stellung der letzteren. *Mag. Parasitol. Instit. Zool. Acad. USSR*, 4 : 229-240.
- GEORGIS, R. & HAGUE, N. G. M. (1981). A neoaplectanid nematode in the web-spinning larch sawfly *Cephalcia lariciphila*. *Ann. appl. Biol.*, 99 : 171-177.
- MRÁČEK, Z. (1977). *Steinernema kraussei*, a parasite of the body cavity of the sawfly, *Cephalcia abietis*, in Czechoslovakia. *J. Invert. Pathol.*, 30 : 87-94.
- POINAR, G. O. Jr. (1979). *Nematodes for Biological Control of Insects*. Boca Raton, Florida, USA, CRC Press., 277 p.
- STANUSZEK, S. (1970). *Neoaplectana feltiae* (Filipjev, 1934) — a facultative parasite of the caterpillars of Agrotinae in Poland. *Proc. 9th Intern. Sym. Europ. Soc. Nematol.*, Warsaw, August 1967 : 355-358.
- STANUSZEK, S. (1974). *Neoaplectana feltiae* complex (Nematoda : Rhabditiodea, Steinernematidae) its taxonomic position within the genus *Neoaplectana* and intraspecific structure. *Zes. Prob. Postepow Nauk. Roln.* 154 : 331-360.
- STEINER, G. (1923). *Aplectana kraussei* n. sp. einer in der Blattwespe *Lyda* sp. parasitierende Nematodenform, nebst Bemerkungen über das Seitenorgan der parasitischen Nematoden. *Zent. Bakt. Parasit. Abt. I*, 59 : 14-18.
- STEINER, G. (1929). *Neoaplectana glaseri* n. g., n. sp. (Oxyuridae). A new nemtic parasite of the Japanese beetle. *J. Wash. Acad. Sci.*, 19 : 436-440.
- WEISER, J. (1955). *Neoaplectana carpocapsae*, nový cizopasník housenek obalece jablecného, *Carpocapsa pomonella* L. *Vest. Cesk. Zool. Spol.*, 19 : 44-52.
- WOUTS, W. M., MRÁČEK, Z., GERDIN, S. & BEDDING, R. A. (1982). *Neoaplectana* Steiner, 1929, a junior synonym of *Steinernema* Travassos, 1927 (Nematoda : Rhabditida). *Syst. Parasitol.*, 4 : 147-154.

Accepté pour publication le 13 juillet 1983.