

# Nematodes from Surtsey

By

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Nematodes have been obtained from two places on the Surtsey island. The animals were sent to the author on agar plates which had been inoculated on Surtsey by Dr. G. H. Schwabe on his visit to the island in July and August 1971. In agar plates, inoculated with material from the sediment in the bottom of a plastic van with fresh water, erected by Dr. B. Maguire and placed about 100 m from the eastern coast (place 349), two species of *Monhystera* were found. From a locality in the middle of the island (place 355), close to the place 237–242 (Behre and Schwabe, 1970), one species of *Acrobeloides* was isolated. This locality is described by Schwabe as: "Westliches Nebenkrater in Surtur I (auf dem direkten Wege von Glocke nach Neujahrskrater!), windglatte Feinasche, keine Moose, schwach feucht."

On October 11th, 1971, the cultures were examined and some animals were transferred to plates with soil agar and Nigon's agar as described in Sohlenius, 1968. The two *Monhystera* species did not survive in these cultures. The *Acrobeloides* species, however, grew readily on these two media and also on potato-dextrose agar (Difco), obviously utilizing the surface-dwelling bacterial flora as a food source. It produced dense populations on all three media and reduced all the visible bacterial growth somewhat before maximal population density occurred a few weeks after inoculation.

The dimensions and morphology of the *Acrobeloides* species resemble Anderson's (1968) description of *Acrobeloides nanus* (de Man, 1880) n. comb. Anderson, 1968. The species, earlier placed in the genus *Cephalobus* Bastian, 1865, according to Meyl (1960) is very common, almost cosmopolitan, and found all over middle Europe.

*Acrobeloides nanus* has been cultured together with bacteria on potato-dextrose agar by Anderson (1968). The effect of different micro-organisms as food sources for the closely related species *A. buetschlii* has been tested by Nicholas (1962). He found that this species could make use of several different bacterial species and he regards it as an unselective bacteria-feeder. It did not grow or reproduce when offered algae (*Chlorella*) or yeast (*Sacharomyces*).

No males of *Acrobeloides nanus* have been found and according to Anderson's (1968) description of the development of the reproductive system, reproduction occurs by parthenogenesis.

The ability to survive desiccation was tested by letting the animals dry slowly on agar-pieces and more rapidly on filter-papers. Thus animals kept for two months on dry soil agar at R.H. 30–35% and 20–22°C revived upon wetting. Within 12 hours several second stage larvae were active and after a few days the number of active larvae of several stages had increased pronouncedly. However, no adults or eggs resumed activity. The reactivated animals gave rise to dense populations when transferred to fresh agar plates. It was not possible to reactivate animals that had desiccated on filter-papers.

*Acrobeloides nanus* apparently has some adaptations and characteristics in common with other animals which have been found on Surtsey (Holmberg and Pejler 1972). Thus it can survive desiccation and is parthenogenetic, it certainly has a very wide distribution and occupies a low trophic level (unselective bacteria-feeder). Apparently this species is quite tolerant towards changing environmental conditions. This is indicated by the fact that besides on Surtsey it has been found in very different localities and also

by its ability to grow and reproduce on so widely separated media as soil agar, Nigon's agar and potato-dextrose agar.

The *Monhystera* species have provisionally been identified as *M. dispar* Bastian, 1865 and *M. simplex* de Man, 1880. However, the identity of these species is uncertain as the taxonomy of *Monhystera* is in a poor state. No males of these species were found. It is probable that they occupy a low trophic level and they are certainly not predaceous.

Cultures with *Acrobeloides* are kept at the Zoological Department as well as preserved material of *Monhystera*.

#### References:

- Anderson, R. V. 1968: Variation in taxonomic characters of a species of *Acrobeloides* (Cobb, 1924) Steiner and Buhner, 1933. *Can. J. Zool.* 46:309–320.
- Behre, K. und Schwabe, G. H. 1970: Auf Surtsey/Island im Sommer 1968 nachgewiesene nicht marine Algen. *Schr. Naturw. Ver. Schlesw.-Holst. Sonderband.* S. 31–100. Kiel, Nov. 1970.
- Holmberg, O. and Pejler, B. 1972: On the terrestrial microfauna on Surtsey during the summer 1970. *Surtsey Research Progress Report* 6:69–72.
- Meyl, A. H. 1960: Freilebende Nematoden, In: *Die Tierwelt Mitteleuropas*, Hrsg. Brohmer, Ehrmann, Ulmer. Leipzig, Quelle und Meyer, 164 S.
- Nicholas, W. L. 1962: A study of a species of *Acrobeloides* (*Cephalobidae*) in laboratory culture. *Nematologica* 8:99-109.
- Sohlenius, B. 1968: Influence of micro-organisms and temperature upon some rhabditid Nematodes. *Pedobiologia* 8:137–145.