

The induction of coiled and anhydrobiotic nematodes in soil.

Induction de nematodes spiralés et anhydrobiotiques dans des
1 échantillons de sol

Y. Demeure¹, D. W. Freckman and S. D. Van Gundy²

Rubrique : J2

mots clés : nematodes - Aphelenchus avenae - Scutellonema brachyurum - anhydrobiotic
Spiralisation anhydrobiotique - sols secs

Seventeenth Annual Meeting of the
Society of Nematologists

Hot Springs, Arkansas

August 7 - 10, 1978

¹Laboratoire de Nematologie, ORSTOM, Dakar, Senegal

²Department of Nematology, University of California, Riverside, CA 92521

9 AVR. 1979
O. R. S. T. O. M.

Collection de Référence
n° 3588 Bio. Sol

DEMEURE, Y., D. W. FRECKMAN and S. D. VAN GUNDY. The induction of coiled and anhydrobiotic nematodes in soil.

A 5 bar pressure plate extractor (Cat. No. 1600) was used to control moisture potential in a loamy sand (sand 75%, silt 24%, clay 1%) to determine how the level and rate of nematode coiling of Aphelenchus avenae and Scutellonema brachyurum occurred at various soil suctions. Active nematodes (1,000) were pipetted onto 5 cc of saturated soil contained in plastic rings on the pressure plate. Every 24 h, the pressure was increased to the following: 0.0, 0.1, 0.3, 0.5, 1, 3 bars. For each pressure, the soil moisture content was 27%, 4.7%, 3%, 2.4%, 2.2%, and 2%, respectively.

Five samples were removed from the pressure plate extractor at each pressure and kept in plastic bags for 6, 5, 4, 3, 2, and 1 day, respectively. To observe their morphology, the nematodes were extracted from soil in 1.25 M sucrose by the Freckman et al. technique. The percentage of coiled A. avenae was 2%, 9%, 12%, 81%, 94%, and 90%, respectively and the percentage of coiled S. brachyurum was 28%, 74%, 83%, 78%, 90%, and 94%, respectively.

Coiling of A. avenae and S. brachyurum occurred in drying soil when the equilibrium between the soil and suction control surface was reached. Pressure alone had no effect on coiling of the nematodes. Since the relative humidity in all soils tests was greater than 99%, it would appear that the physical force of the water films in soil may have more important influence on the initiation of coiling than just relative humidity in the soil.--Laboratoire de Nematologie ORSTOM
Dakar, BP 1386, Republique du Senegal; Department of Nematology, University of
California, Riverside, CA 92521.