
**Water and soil quality —
Determination of the toxic effect
of sediment and soil samples on
growth, fertility and reproduction of
Caenorhabditis elegans (Nematoda)**

*Qualité de l'eau et du sol — Détermination de l'effet toxique
d'échantillons de sédiment et de sol sur la croissance, la fertilité et la
reproduction de *Caenorhabditis elegans* (Nematodes)*

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ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

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Contents

	Page
Foreword.....	iv
Introduction.....	v
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Principle	2
5 Reagents and media	3
6 Apparatus	5
7 Reference substance	6
8 Organisms	7
8.1 Test organism.....	7
8.2 Food organism.....	7
9 Stock- and pre-cultures	7
9.1 Stock cultures.....	7
9.1.1 <i>Caenorhabditis elegans</i>	7
9.1.2 <i>Escherichia coli</i>	7
9.2 Pre-culture.....	8
10 Procedure	8
10.1 Preparation of food medium.....	8
10.2 Preparation of test material and controls.....	8
10.2.1 Soil.....	8
10.2.2 Sediment.....	9
10.2.3 Pore water, elutriate, extract.....	9
10.2.4 Solution of reference substance.....	9
10.3 Test.....	10
10.4 Nematode separation.....	10
10.5 Measurements and calculations.....	10
10.5.1 Recovery.....	10
10.5.2 Males.....	10
10.5.3 Growth and fertility.....	11
10.5.4 Reproduction.....	11
10.6 Timetable of the test.....	12
11 Validity criteria	13
12 Expression of results	13
13 Test report	14
Annex A (informative) Determination of maximal water holding capacity (WHC_{max})	15
Annex B (informative) Figures and photos of adult worms <i>C. elegans</i>	16
Annex C (informative) Micropipette method (10.3)	18
Annex D (informative) Performance data	19
Bibliography	22

Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 147, *Water quality*, Subcommittee SC 5, *Biological method*.

This second edition cancels and replaces the first edition (ISO 10872:2010), which has been technically revised. The main changes compared to the previous edition are as follows:

- the title has been changed to achieve a better perception in the field soil toxicity testing;
- for soil testing, the method has been modified in terms of a reduced water content of the test material;
- cited references and standards have been refreshed;
- information on the control soil and restrictions for tested soils has been added;
- the document has been editorially revised.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Nematodes are one of the most abundant and species-rich metazoans in sediments^[1] and soils^[2] and possess key positions in benthic and soil food webs due to the evolution of various feeding types (bacterial, algal, fungal and plant feeders, omnivores, predators see References [3] and [4]). Moreover, they are well acknowledged as environmental indicators for assessing the toxicity of chemicals and the quality of sediments and soils (see References [5], [6], [7], [8] and [9]).

The test organism *Caenorhabditis elegans* (Maupas, N2 var. Bristol) is a bacterivorous nematode that is found primarily in microbe-rich, decaying plant material (see Reference [10]) and belongs to the family of Rhabditidae, frequently found in terrestrial soils and aquatic sediments (see References [11] and [12]). Moreover, individuals of *C. elegans* were already found in sediments of polysaprobial fresh-water systems (see References [13] and [14]). Due to its easy cultivation and short life cycle^[15], *C. elegans* has become a well-studied model organism in biomedical and ecotoxicological research (see References [16], [17] and [18]).

The test is designed for measurement of the response to dissolved and particle-bound substances^[19]. It applies to the testing of sediments, soils, waste, pore water, elutriates and aqueous extracts (see e.g. References [20], [21], [22] and [23]).

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