Second edition
2019-02

Soil quality — Determination of dehydrogenases activity in soils —

Part 2: Method using iodotetrazolium chloride (INT)

Qualité du sol — Détermination de l'activité des déshydrogénases dans les sols —

Partie 2: Méthode au chlorure de iodotétrazolium (INT)

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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 190, *Soil quality,* Subcommittee SC 4, *Biological characterization*.

This second edition cancels and replaces the first edition (ISO 23753-2:2005), which has been technically revised. The main changes compared to the previous edition are as follows:

— a new Clause 5 “Limitations” has been added;

— in Clause 6, reagents and their preparation have been updated to new results (e.g. concentration of Tris buffer of 100 mmol/l at pH 7,6, incubation time between 4 h to 6 h);

— new Tables 1 and 2 have been added;

— Clause 10 "Validity criteria" has been added;

— a new Annex A “Results of modified parameters” has been added;

— references in Clause 2 and the Bibliography have been updated.

A list of all the parts in the ISO 23753 series can be found on the ISO website.

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

The soil microflora is responsible for the decomposition and conversion of organic substances, carbon, nitrogen, sulfur and phosphorus cycles, soil aggregates stability and as a food source for microbivores. Dehydrogenases, as intracellular enzymes and respiratory chain components of the microbial cells, play a major role in the production of energy by organisms. They oxidize organic compounds by transferring electrons to an acceptor (e.g. NAD^+). Dehydrogenases are essential components of the enzyme system of microorganisms. Dehydrogenase activity can therefore be used as an indicator of biological redox systems and as a measure of the viable and physiologically active soil microbial community.

Microbial oxidative activity in soil is linked to respiratory activity, which could be approached with the determination of dehydrogenases activity. Basal and induced respiration in soil could be affected by soil management, practices and contamination.