



BSI Standards Publication

Soil quality — Test for estimating organic matter decomposition in contaminated soil

National foreword

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Soil quality — Test for estimating organic matter decomposition in contaminated soil

*Qualité du sol — Essai d'estimation de la décomposition de la matière
organique dans un sol contaminé*



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Foreword

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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

Determining if the soil microbial community is healthy is a complex task and is influenced by the community's resistance and resilience to disturbances[1]. In its simplest terms, a healthy soil is one that functions in organic matter decomposition (OMD) and nutrient cycling. In fact, a suite of standardized test methods are needed to better understand the ecology of the soil microbial community and its role in soil function and structure[2]. However, one key soil microbiological function is organic matter decomposition. Unfortunately, there is a lack of standardized procedures for quantitatively measuring this important process. As such, the ability of soil microorganisms to decompose lignin cellulosic material provides evidence that the microbial population is active in OMD and carbon cycling. A standard field method currently available for assessing soil OMD inhibition from environmental contaminants involves using litter bags placed in experimental plots[3]; however, there is no standard method available for a laboratory-based assessment of organic matter decomposition. A laboratory-based method has been developed using the same principles as the litterbag method. In place of indigenous organic matter (i.e. tree leaves, crop material, etc.), the laboratory-based method uses readily accessible filter paper as a standard organic material for organic matter decomposition tests[4]. The laboratory-based method has been used and described in several research studies as part of a greater soil microbial health (SMH) assessment suite of tests[5],[6]. The studies evaluated the impact of contaminants in soil from brownfield sites or from testing of chemical-spiked control soil for risk assessment research.

This document outlines a procedure for determining the effects of contaminated soils on the decomposition of organic matter (lignin cellulosic filter paper) following a standardized methodology.

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