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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 32720-2016

**Laboratory methods for determination of microbial soil
respiration**

土壤微生物呼吸的实验室测定方法

(English Translation)

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Foreword

This standard is drafted in accordance with the rules given in GB/T 1.1-2009.

This standard uses the translation method equivalent to ISO 16072.:2002 "soil quality soil microbial respiration laboratory determination method".

For ease of use, this standard has been modified as follows.

--- Change the standard name to "Laboratory determination of soil microbial respiration".

This standard is proposed by the Ministry of Agriculture of the People's Republic of China.

This standard is under the responsibility of the National Soil Quality Standardization Technical Committee (SAC/TC404).

The drafting of this standard. Nanjing Institute of Soil Science, Chinese Academy of Sciences, Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences, Jiangsu Province Research Institute.

1 Scope

This standard specifies the method for the determination of soil microbial respiration in aerobic and unsaturated soils. This method is suitable for the addition of substrates (substrate induction Respiration) or no substrate (basal breath) under the conditions of oxygen consumption or the determination of carbon dioxide emissions.

This standard applies to the determination of soil respiration for the following purposes.

- determine soil microbial activity (see reference [3]);

To determine the effect of additives (nutrients, contaminants, soil amendments, etc.) on soil microbial metabolic intensity;

- determine soil microbial biomass (see reference [4]);

Determine metabolic entropy (qCO_2).

2 Normative reference documents

The following documents are indispensable for the application of this document. For dated references, only the dated edition applies to this article. For undated references, the latest edition (including all modifications) applies to this document.

ISO 10381-6.:1993 Soil quality sampling - Part 6. Laboratory determination - Soil collection and treatment for aerobic microbial processes and storage guidelines
(Soil quality-Sampling-Part 6. Guidance on the collection, handling and storage of soil for the assessment of aerobic microbial processes in the laboratory)
ISO 11274.:1998 Soil quality - Determination of water holding capacity - Laboratory method (Soil quality - Determination of the water-retention characteristic-Laboratory methods)
ISO 11465.:1993 Soil quality Quality base Soil dry weight and water content determination Gravimetric method (Soil quality-Determination of dry matter and water content on a mass basis-Gravimetric method)

3 Terms and definitions

The following terms and definitions apply to this document.

Basal respiratory basal respiration Do not add nutrients to the soil when the microbial respiration.

Substrate induced respiratory substrate-induced respiration; SIR Respiration of soil microbes after adding nutrients.

Note: add glucose as a nutrient.

Microbial activity

The metabolic intensity of microorganisms.

Note: can be quantified, such as by oxygen consumption or carbon dioxide emissions calculated.