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Plant biostimulants — Determination of the yeast and mould content

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National foreword

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The UK participation in its preparation was entrusted to Technical Committee EH/4/-/7, Plant Biostimulants.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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English Version

Plant biostimulants - Determination of the yeast and mould content

Biostimulants des végétaux - Détermination de la teneur en levures et en moisissures

Biostimulanzien für die pflanzliche Anwendung - Bestimmung des Gehalts an Hefen und Schimmelpilzen

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European foreword

This document (CEN/TS 17707:2022) has been prepared by Technical Committee CEN/TC 455 "Plant biostimulants", the secretariat of which is held by AFNOR.

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This document has been prepared under a Standardization Request given to CEN by the European Commission and the European Free Trade Association.

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Introduction

This document was prepared by the experts of CEN/TC 455 "Plant Biostimulants". The European Committee for Standardization (CEN) was requested by the European Commission (EC) to draft European standards or European standardization deliverables to support the implementation of Regulation (EU) 2019/1009 of 5 June 2019 laying down rules on the making available on the market of EU fertilizing products ("FPR" or "Fertilising Products Regulation").

This standardization request, presented as M/564, also contributes to the Communication on "Innovating for Sustainable Growth: A Bio economy for Europe". The Working Group 5 "Labelling and denominations", was created to develop a work program as part of this request. The technical committee CEN/TC 455 "Plant Biostimulants" was established to carry out the work program that will prepare a series of standards. The interest in biostimulants has increased significantly in Europe as a valuable tool to use in agriculture. Standardization was identified as having an important role in order to promote the use of biostimulants. The work of CEN/TC 455 seeks to improve the reliability of the supply chain, thereby improving the confidence of farmers, industry, and consumers in biostimulants, and will promote and support commercialisation of the European biostimulant industry.

Biostimulants used in agriculture can be applied in multiple ways: on soil, on plant, as seed treatment, etc. A microbial plant biostimulant consists of a microorganism or a consortium of microorganisms, as referred to in Component Material Category 7 of Annex II of the EU Fertilising Products Regulation.

This document is applicable to all microbial biostimulants in agriculture.

Table 1 below summarizes many of the agro-ecological principles and the role played by biostimulants.

Table 1 — Agro-ecological principles and the role played by biostimulants [1]

Increase biodiversity
By improving soil microorganism quality/quantity
Reinforce biological regulation and interactions
By reinforcing plant-microorganism interactions
- symbiotic exchange i.e. *Mycorrhizae*
- symbiotic exchange i.e. *Rhizobiaceae/Faba*
- secretions mimicking plant hormones (i.e. *Trichoderma*)
By regulating plant physiological processes
- for e.g. growth, metabolism, plant development…
Improve biogeochemical cycles
- improve absorption of nutritional elements
- improve bioavailability of nutritional elements in the soil
- stimulate degradation of organic matter

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WARNING — Persons using this document should be familiar with normal laboratory practice. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.

IMPORTANT — It is absolutely essential that tests conducted in accordance with this document be carried out by suitably trained staff.

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1 Scope

This document specifies a horizontal method for the enumeration of yeasts and moulds present in plant biostimulants intended for use in agriculture, by means of the colony count technique after aerobic incubation at 25 °C ± 2,5 °C.

This document allows the enumeration of yeasts and moulds, in technical and formulated plant biostimulant, both in liquid and solid state. The method is applicable to microbial plant biostimulant except those composed of fungi or yeast to verify that the concentration of yeast and moulds does not exceed the respective limits described in the EU Fertilisers Regulation [1].

If necessary, yeast and mould enumerated can be identified using suitable identification tests.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
yeast
mesophilic aerobic microorganism which, using mycological agar medium under the conditions described in this document, develops matt or shiny round colonies (3.3) on the surface of the medium, usually having a regular outline and a more or less convex surface

3.2
mould
mesophilic aerobic filamentous microorganism which, on the surface of mycological agar medium under the conditions described in this document, usually develops flat or fluffy spreading colonies (3.3) often producing spores or conidia

3.3
colony
localized visible accumulation of microbial mass (such as prokaryotes, bacteria, micromycetes, yeast and fungi) or organisms (such as *Dreissena* species) developed on or in a solid nutrient medium from a viable particle or organism

Note 1 to entry: Frequently, micro colonies from nearby viable particles, before becoming visible, fuse into one macro colony. The number of visible colonies is, therefore, usually and underestimate of the number of viable particles.

[ISO 6107-6:2021, [4], modified]

3.4
product
portion of an identified plant biostimulant product received in the laboratory for testing

3.5
sample
portion of the product (3.4) that is used in the test to prepare the initial suspension

3.6
initial suspension
suspension (or solution) of the sample (3.5) in a defined volume of an appropriate diluent

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