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STN	**Odber vzoriek vody na zachytenie makrobiálnej environmentálnej DNA vo vodnom prostredí**	**STN EN 17805** 75 7039

Water quality - Sampling, capture and preservation of environmental DNA from water

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

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English Version

Water quality - Sampling, capture and preservation of environmental DNA from water

Qualité de l'eau - Échantillonnage, collecte et conservation de l'ADN environnemental prélevé dans l'eau

Wasserbeschaffenheit - Probenahme, Erfassung und Konservierung von Umwelt-DNA in Wasser

This European Standard was approved by CEN on 30 January 2023.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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European foreword

This document (EN 17805:2023) has been prepared by Technical Committee CEN/TC 230 “Water analysis”, the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2023, and conflicting national standards shall be withdrawn at the latest by September 2023.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN shall not be held responsible for identifying any or all such patent rights.

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Introduction

WARNING — Persons using this document should be familiar with water sampling protocols to assess biological diversity. 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 health and safety practices.

Moreover, the need of notification, obtaining certificates or permits prior to sampling, depending on national or international laws and regulations such as the Nagoya Protocol on Access to Genetic Resources (https://www.cbd.int/abs/), needs to be considered.

The monitoring of organisms is key to the assessment of the status of aquatic ecosystems and is required by national and international legislation such as the European Union Water Framework Directive (2000/60/EC). A range of methods have been described how to monitor organisms in aquatic environments, leading to a wide range of European standards (e.g. EN 14011:2003, EN 14757:2015, EN 15460:2007). These approaches, however, necessitate the capture and/or collection of the organisms of interest, which can be a laborious and time-consuming process.

The possibility to detect the presence of organisms and/or quantify relative abundance (e.g. [6]) in aquatic environments via the analysis of environmental DNA (eDNA) provides a novel means to monitor biodiversity across a wide range of taxonomic groups, including microorganisms, plants and animals ([7][8][9]). This approach allows to examine organismic diversity without the need to directly isolate and capture organisms and it is expected to play a key role for future biomonitoring aiming at temporally and spatially highly resolved species inventories [10]. Albeit the power of the eDNA approach has been repeatedly reported [11], there is a great need for standardizing the application of eDNA-based assessment of aquatic biodiversity ([12], [13]). Note, however, that eDNA-based biomonitoring currently does not allow to obtain certain population parameters (e.g. individual size, sex) which can be obtained by traditional sampling techniques.

This document provides guidance how to sample and preserve eDNA from water samples, addressing the first and crucial step for any further downstream eDNA-based analyses of biodiversity. A specific technical report for the routine sampling of benthic diatoms from rivers and lakes adapted for metabarcoding analyses is CEN/TR 17245:2018.

1 Scope

This document specifies procedures for sampling, capture and preservation of environmental DNA (eDNA) in aquatic environments, stemming from organisms that are or have recently been present in a waterbody, have visited it or whose DNA has been introduced to the waterbody through some mechanism. This document also covers procedures for avoiding sample contamination and ensuring DNA quality, key properties of the filtering procedure and equipment and reporting standards.

This document does not include the collection of eDNA from biofilms, sediments or similar sample types and does not cover sampling designs.

2 Normative references

There are no normative references in this document.