

# DIN EN 17477:2021-10 (E)

## Algae and algae products - Identification of the biomass of microalgae, macroalgae, cyanobacteria and Labyrinthulomycetes - Detection and identification with morphological and/or molecular methods

---

<b>Contents</b>		<b>Page</b>
European foreword .....		4
Introduction .....		5
1	Scope .....	6
2	Normative references .....	7
3	Terms and definitions .....	7
4	Abbreviations .....	11
5	Reagents .....	12
5.1	Reagents for morphological methods .....	12
5.1.1	Isotonic solution .....	12
5.2	Reagents for molecular methods .....	12
5.2.1	Primer .....	12
5.2.2	Deoxynucleotide triphosphate mix (dNTPs) .....	12
5.2.3	Thermostable DNA polymerase .....	12
5.2.4	PCR reaction buffer .....	12
5.2.5	Agarose gel .....	12
5.2.6	Gel electrophoresis buffer .....	13
5.2.7	Loading buffer .....	13
5.2.8	DNA Ladder .....	13
6	Apparatus .....	13
6.1	General .....	13
6.2	Apparatus for morphological identification methods .....	13
6.2.1	Low-magnifying optical system .....	13
6.2.2	Light microscope .....	13
6.2.3	Scientific literature on taxonomy .....	13
6.2.4	Microscope slide .....	14
6.2.5	Microscope cover glass .....	14
6.3	Apparatus for molecular identification methods .....	14
6.3.1	Thermocycler .....	14
6.3.2	Gel electrophoresis device .....	14
6.3.3	DNA sequencer .....	14
6.3.4	Plastic consumables, DNA free, disposable .....	14
7	Principle .....	14
7.1	General .....	14
7.2	Morphological methods .....	15
7.3	Molecular methods .....	15
8	Procedure .....	15
8.1	General laboratory requirements .....	15
8.2	Choice of methods .....	15
9	Morphological identification methods .....	17

9.1	General .....	17
9.2	Macroscopic identification with the naked eye or a magnifying glass .....	17
9.3	Light microscopy .....	17
9.3.1	General .....	17
9.3.2	Staining .....	17
9.3.3	Preparation of microscope slides .....	17
9.3.4	Microscopic identification .....	18
9.3.5	Use of identification keys .....	18
10	Molecular identification methods .....	18
10.1	General .....	18
10.2	DNA extraction and purification .....	19
10.3	DNA Amplification .....	19
10.3.1	Principle of DNA Amplification .....	19
10.3.2	Method .....	19
10.4	Selection of primers .....	20
10.5	Control reactions .....	20
10.6	Evaluation of PCR products .....	21
10.7	PCR product cloning .....	21
10.8	PCR product sequencing .....	21
10.9	Evaluation of sequence data .....	21
10.10	Sequence analysis/comparison with reference sequences in public databases .....	22
11	Test report .....	23
	Annex A (informative) Examples of applicable primers .....	24
	Annex B (informative) Scientific literature that may be used for identification .....	26
	Bibliography .....	28