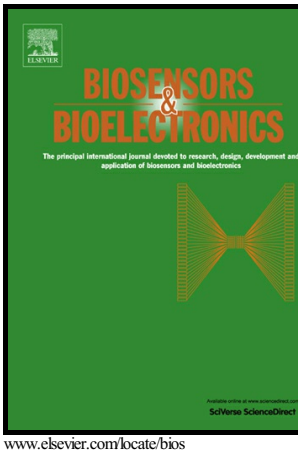

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Supplementary Material: Prediction of Wastewater Quality Using Amperometric Bioelectronic Tongues

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2. Materials and Methods

2.1. Wastewater Samples

The flux through the WWTP was approximately 100 mL/h and the temperature of the heat cover was set to 37°C. During one and a half months, 388 samples were collected continuously from the outgoing water at room temperature with an ISCO model 2700 autosampler. Each sample (200 to 400 mL) of outgoing water was collected for 2 to 4 hours. 24 samples were collected in each sequence before the autosampler was emptied. A fraction of 80-100 mL from each sample was stored at −18°C and the excess discarded.

The effluent quality during the treatment process was controlled to range from 'alarm' to 'normal' by adding nutrients N and P to the wastewater batch prior to the treatment. The batch wastewater was stored at 5°C. The process was monitored by measuring COD every second to third day. Starting with sample no. 352, the incoming batch was changed to wastewater with no nutrients added, and from sample no. 374 onwards, the thermostat (37°C) was turned off to perturb the process. These changes were brought about in order to regulate the quality from 'normal' towards 'alarm' again.

2.5. Chemicals

2.5.1. Array Type 1

Horseradish peroxidase (HRP, 263U/mg), soybean peroxidase (SBP, 108 U/mg), mushroom tyrosinase (TYR, 2590 U/mg), acetylcholinesterase from electric eel (AChE, 244U/mg), butyrylcholinesterase from horse serum (BChE, 345 U/mg), bovine serum albumin (BSA), glutaraldehyde, acetylthiocholine chloride (ATChCl), glucose, cellobiose, and catechol were obtained from Sigma (St. Louis (MO), USA). Glucose oxidase from *Aspergillus niger* (GOx, 270 U/mg) was purchased from Biozyme Laboratories (Gwent, UK). Cellobiose dehydrogenase from *Phanerochaete chrysosporium* (CDH, 2.45 g/L, $A_{420}/A_{280} = 0.64$) was purified according to the method of Henriksson et al. (1991). Chemicals for preparation of phosphate buffer saline (PBS, 50 mM phosphate buffer containing 0.1 M KCl at pH7) were from Merck (Darmstadt, Germany). All solutions were prepared using water purified in a Millipore Milli-Q system (Bedford (MA), USA).

2.5.2. Array Type 2

HRP (RZ II, 200 U/mg) and bovine hemoglobin (Hb) were purchased from Sigma-Aldrich (Taufkirchen, Germany). Other enzymes were lactate oxidase from *Aerococcus*

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