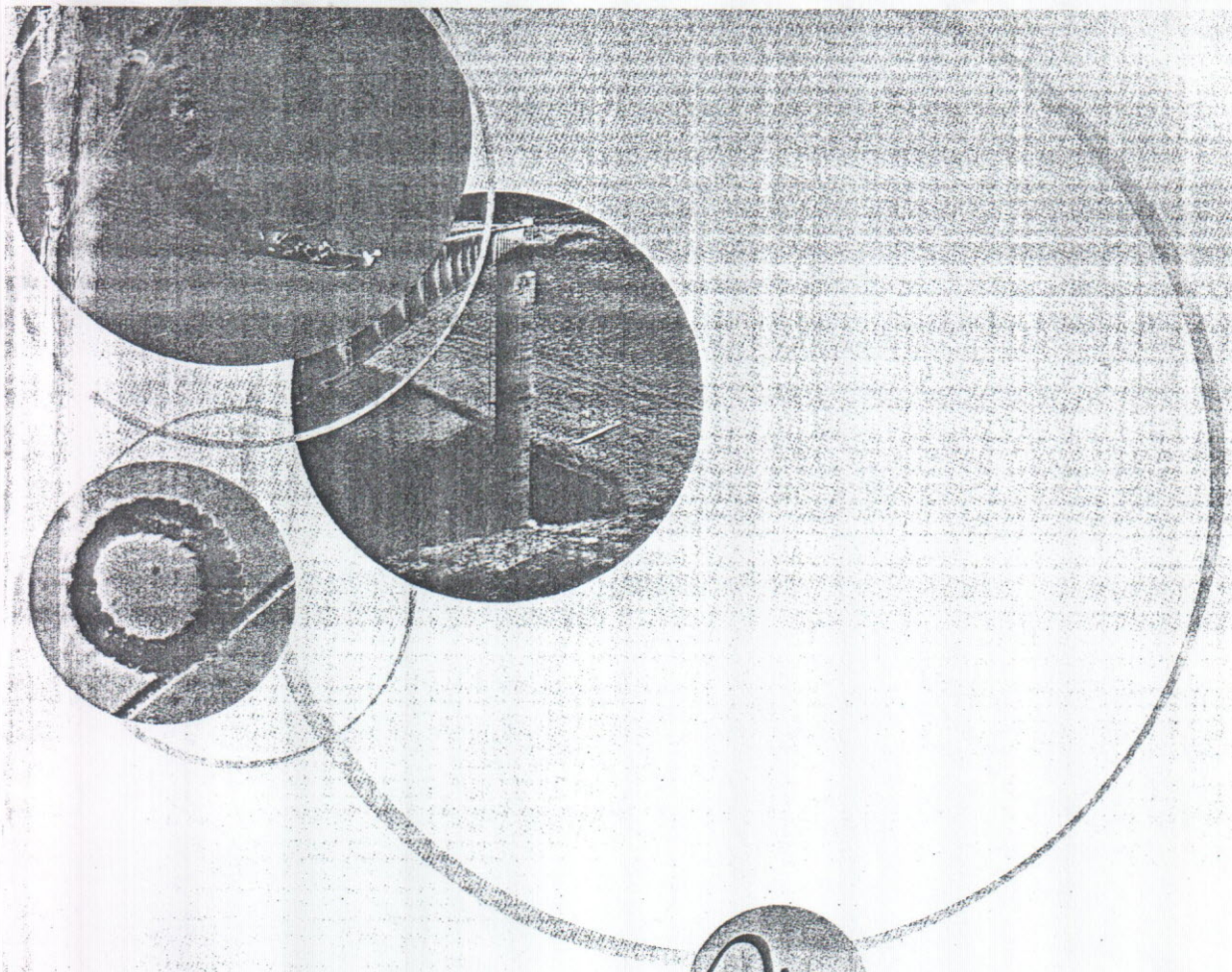

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NEW SENSOR FOR IDENTIFICATION OF TOXINS AND DISSOLVED ORGANIC MATTER FROM CYANOBACTERIA

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Usually, the most used method for detection of cyanotoxins is the HPLC plus mass spectroscopy. The absence of a field instrument for detection of safe concentration of these toxins is an apparent lack. Based on this, it is presented in this work the description of a system based on a multiarray of nanostructured conducting polymer sensors that by using impedance measurements are able to sense and classify the following species: *Anabaena spiroides (A), Cylindrospermopsis raciborskii (C), Microcistis aeruginosa (M), and Planktothrix tropicalis (P).* The sensory system is based on the concept of global sensibility consisting of ten interdigitated electrodes sheathed with a layer of an ultra-fine film of conductor polymer. Electrodes are excited by an AC signal generated by an impedance analyzer. Samples with concentration around 10^6 (live and dead) cells/liter of each specie were used for the experiments. Electrodes were immersed in each sample and the signal frequency was swept in order to seek peaks of sensitivity. Higher sensitivity was obtained with a 1 KHz signal. Samples were diluted in 80%, 60%, and 40% of the total concentration. Electrodes were immersed in each sample again (from 100% to 40% of the total concentration) and it was applied a 1 KHz signal. Data from 10 measurements on each electrode were collected. The data set was used to feed a Principal Component Analysis routine (PCA). The diagrams resulting from the application of PCA's method showed clearly the clusters formed by the response due to each species live or dead, with more than 99% of the whole information being described by the first principal component. Poor results appeared when 40% concentrations were used, getting difficult to distinguish the clusters formed between P and C species. These preliminary results indicate that this new technique can be promising at least for fast detection. It is also important to note that the electrodes were not previously prepared to detect anyone species, this is, by the inclusion of proper related substances in the film sensor is expected a higher sensibility in the presence of one of the live species or related toxins.

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DM20

NIES CERTIFIED REFERENCE MATERIAL FOR QUANTIFICATION OF TOTAL MICROCYSTINS

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The certified reference material (CRM) for total microcystin analysis was prepared by National Institute for Environmental Studies (NIES). In the CRM, at least seven microcystin variants were found by HPLC analysis. The major microcystin variants in the CRM were [Dha^7]microcystin-RR and -LR. The standard materials of these microcystin variants were not able to obtain from commercial sources. Thereupon, the total microcystin content in the CRM was determined according to the MMPB method. Furthermore, we purified each microcystin variants for the structure elucidation. From the results of the analyses of the NMR and MS spectra and amino acids, the remained five minor variants in the CRM were elucidated to be [$D\text{-}Asp^3$, Dha^7]microcystin-RR and -LR, [Dha^7]microcystin-YR, -ThTyrR and -HilR. The CRM is very useful not only as the standard material for the quantification of total microcystins but also as the reference variants for the identification of [Dha^7]microcystin variants. The NIES CRM No. 26 (water bloom) with analytical data of microcystin variants has been supplied around the world.