18ᵗʰ Biotechnology Congress

October 19-20, 2017 | New York, USA

Construction and membrane optimization of a new all solid-state contact Fe(II) selective sensor

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Iron is the fourth abundant element on Earth's crust and it is present in various rock and soil minerals in the form of iron (II) and iron (III). Iron is a crucial element for both plants and animals since it plays an important role in several metabolic processes. Iron and its compounds interfere with natural sources as a pollutant through the discharge of wastes since they have been widely used as containers and pipelines all over the world. Consequently, it became important to detect and monitor iron levels selectively and sensitively for not only in biological samples but also in industrial and environmental samples. Potentiometric sensors have been developed by immobilizing a membrane matrix on all-solid-state contact. This technique has advantages such as sample monitoring without any reagent consumption and very short analysis time. The all-solid-state contact sensor was prepared in certain ratio of graphite-epoxy resin and then the surface of all-solid-state contact sensor was coated with the sensing membrane without an internal reference solution. Therefore, its potentiometric response became more stable and life-time of the sensor increased without any loss in its potentiometric characteristics. To the best of our knowledge, there is no report available in literature regarding the detection of Fe (II) using dithiocarbamate as a sensing material. In this study, a novel iron(II) ion selective sensor was developed and the electrode composition was optimized

Biography

Tugba Ozer is a Research and Teaching Assistant in Yildiz Technical University, Istanbul, Turkey. She has completed her MSc in Marmara University. She is a PhD student in Yildiz Technical University, Department of Bioengineering in Turkey. She has been a visiting PhD student in Department of Soil and Crop Science, Colorado State University. Her PhD research is focused on developing iron(II) and iron(III) selective sensors and applying them in soil and water samples. Her specialization areas are: electrochemistry, environmental chemistry, analytical chemistry, heavy metals, sensors, crop science, biopolymer, bioinformatics and systems biology

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J Biotechnol Biomater, an open access journal
ISSN: 2155-952X

Bio America 2017
October 19-20, 2017

Volume 7, Issue 4 (Suppl)

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