

**AMERICAN ROMANIAN ACADEMY
OF ARTS AND SCIENCES**



ABSTRACTS

of the 41st Congress, Palace Sinaia Romania, August 2-5, 2017

*100 DREAMING YEARS ANNIVERSARY
OF ROMANIAN SPIRITUALITY AND CULTURE*

Dr. Oana LEONTE, Editor

ADVISORY BOARD

Ileana COSTEA (California State University, Northridge, USA)

Horia CRISTEA (West University of Timisoara, Romania)

Vasile STAICU (University of Aveiro, Portugal)

Raluca Van STADEN (Institute of Research for Electrochemistry and
Condensed Matter, American Chemical Society, Romanian Chapter Chair)

Hayward, CA

2017

ABSTRACTS

**of the 41st Congress of
American Romanian Academy of Arts and Sciences,
Palace Sinaia Romania, August 2nd - 5th, 2017**

Editor: Dr. Oana Leonte

Front Cover: Dr. Oana Leonte

Honorary Congress Chair: Acad. Prof. Dr. Constantin Corduneanu

Congress Chair: Dr. Oana Leonte

**Organized by the American Romanian Academy of Arts and
Sciences**

Student Track: Prof. Dr. Raluca van Staden

Editorial Services: Adina Stoicescu

ISBN 978-1-935924-35-7

**Copyright 2017 American Romanian Academy
of Arts and Sciences**

Published by ARA Publisher

POSTERS

- [21] Determination of Lead in Water Using Modified Electrodes Based on Phthalocyanine 39
Georgiana-Luiza Arnold, Jacobus (Koos) Frederick van Staden, Ramona Georgescu-State, Luisa-Roxana Popescu-Mandoc
- [22] New Nanostructured Materials Detect Dopamine in Biological Fluids40
Raluca-Ioana Stefan-van Staden, Liliana-Roxana Balahura, Alexandra Oprisanu-Vulpe, Livia Alexandra Gugoasa, Jacobus F. van Staden, Eleonora-Mihaela Ungureanu, Crina Socaci
- [23] Disposable Stochastic Sensors for the Simultaneous Assay of Acetylcholine and Dopamine in Whole Blood Samples 40
Raluca-Ioana Stefan-van Staden, Amalia Gabriela Diaconeasa, Carmen Cristina Surdu-Bob
- [24] A Fluorimetric Method for the Determination of Nitrite in Water..... 41
Ramona Georgescu-State, Jacobus (Koos) Frederick van Staden, and Georgiana-Luiza Arnold, Luisa-Roxana Popescu-Mandoc
- [25] Heavy Metals Detections Using Stochastic Microsensors 42
Ioana-Georgiana Lazar, Raluca-Ioana Stefan-van Staden, Livia Alexandra Gugoasa, Jacobus Frederick van Staden, Elena Diacu
- [26] New Tools for Screening of Interleukins 43
Ruxandra Ilie, Livia Alexandra Gugoasa, Raluca-Ioana Stefan-van Staden
- [27] Stochastic Sensors for the Detection Of L-glucose and D-glucose..... 44
Grigorina Mitrofan, Raluca-Ioana Stefan-van Staden, Constantin Ionescu Tirgoviste
- [28] Determination of KRAS Using Graphite and Graphene Based Amperometric Sensors 45
Ahmed Jassim Muklive AL-Ogaidi, Livia Alexandra Gugoasa, Raluca-Ioana Stefan-van Staden, Ahed El-Khatib, Marcela-Corina Rosu, Crina Socaci
- [29] Microbiological Study: Effect Of Pinaceae and Lamiaceae Essential Oils on 3 Bacterial Germs 46
Ioana Adina Oancea, Jacobus (Koos) Frederick van Staden, Elena Oancea, Eleonora-Mihaela Ungureanu

National Institute of Research for Electrochemistry and Condensed
Matter,

202 Splaiul Independentei Street, 060021, Bucharest-6, Romania

²Faculty of Applied Chemistry and Material Science, Politehnica
University of Bucharest, Bucharest, Romania.

³Low Temperature Plasma Laboratory,

National Institute for Lasers, Plasma and Radiation Physics
(NILPRP),

409 Atomistilor Street, Magurele, 077125, Romania

Abstract: Acetylcholine and dopamine are very important for aging and brain pathology. Their assay in whole blood is essential for fast and early detection of neurodegenerative disorders. Therefore, polymeric textile covered with a thin layer of Ag based stochastic sensors modified with maltodextrins presenting different dextrose equivalence (DE) MDI (DE 13.0-17.0), and MDII (DE 16.5-19.5) were designed and characterized. These stochastic sensors were used reliable for both qualitative and quantitative analysis of acetylcholine and dopamine in whole blood samples. The sensitivity and selectivity is high, and they proved to be reliable for the assay of dopamine and acetylcholine in whole blood samples, with recoveries higher than 98.00%, and RSD(%) values lower than 1.00%.

Keywords: sensor, stochastic, acetylcholine, dopamine, whole blood

[24] A Fluorimetric Method for the Determination of Nitrite in Water

**Ramona Georgescu-State¹, Jacobus (Koos) Frederick van
Staden¹, and Georgiana-Luiza Arnold¹, Luisa-Roxana Popescu-
Mandoc²**

¹Process Analytical Technology Laboratory (PATLAB) Bucharest,
National Institute of Research and Development for

Electrochemistry and Condensed Matter (INCDEMC)
202 Splaiul Independentei Str., Bucharest 060021, Romania
²The National Research and Development Institute for Industrial
Ecology - INCD-ECOIND Bucharest, 060652, Bucharest, Romania
koosvanstaden2012@yahoo.com

Abstract: Nutrients such as nitrogen (N, nitrate) as essential nutrients for plants are intensively used as fertilizers in agriculture. Nitrite is essential within environmental, food, industrial and physiological systems. Nitrates and nitrites are added to foods such as cured sandwich meats, bacon, salami or sausages as preservatives and to give them colour. When added to processed foods in this way, both nitrates and nitrites can form nitrosamines in the body, which can increase your risk of developing cancer. Furthermore, with high dose application, overloading and inefficient use of nutrients, agricultural run-off becomes a major contributor to the eutrophication of fresh water rivers and lakes. High concentrations promote the growth of cyanobacteria and algae with cyanobacteria blooms ('algal blooms') that produce harmful toxins that can eventually reach and accumulate in the food chain, and can be harmful to humans. Therefore a reliable, sustainable and convenient analytical technique is essential for the determination of nitrite in water. The nitrite levels in drinking water should be below 60 ng/ml.

A simple, sensitive and selective fluorimetric method for the determination of nitrite was developed and will be presented. The fluorimetric determination is based on the diazotization reaction of nitrite with a fluorescent dye, tetraamino zinc (II) phthalocyanine in an acidic medium. The optimum experimental conditions were studied. The proposed method has been successfully applied to the determination of nitrite in different water samples (e.g., fresh water, underground water, geothermal waste water). The results compared favorably with standard methods.

Acknowledgements: The authors gratefully acknowledge the Romanian National Authority for Scientific Research, UEFISCDI for financial support, under grant PN-III-P2-2.1-PED-2016-0181 and the National Research and Development Institute for Industrial Ecology - INCD-ECOIND Bucharest for standard ISO-certified samples.

Keywords: nitrite, fluorimetry, water

[25] Heavy Metals Detections Using Stochastic Microsensors

**Ioana-Georgiana Lazar¹, Raluca-Ioana Stefan-van Staden²,
Livia Alexandra Gugoasa², Jacobus Frederick van Staden²,
Elena Diacu¹**

¹Faculty of Applied Chemistry and Material Science,
University "Politehnica" of Bucharest, 011061, Bucharest,