

CURRICULUM VITAE

Name: Mariana Emilia Ghica
Born: 05-08-1977
Institute address: Laboratório de Electroanálise e Corrosão, Instituto Pedro Nunes,
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Research Interests: *Analytical and interfacial electrochemistry, biological and biophysical processes, biomaterials, nanotube and nanoparticle electrode modification, food, clinical and environmental monitoring; HPLC and electrochemical determination of antioxidants in natural samples for DNA aging protection, immunosensors, corrosion and its inhibition.*

Languages: Romanian (native language), English, Portuguese, Russian, Spanish

Education:

1997 – 2001 BSc in Physics, specialisation Medical Physics, University of Bucharest, Bucharest, Romania
2001 – 2003 MSc in Medical Physics, University of Bucharest, Bucharest, Romania
2003 – 2007 PhD in Biochemistry, specialisation Biochemical Technology, University of Coimbra, Portugal

Scientific Training

Practice in the Laboratory of Safety Radiation, Institute of Public Health of Bucharest, Bucharest, 1-18 June 2000.
Seminar *Indústria e Impacto Ambiental (Industry and Environmental Effect)*, integrated in the *Cycle of Seminars INOVAÇÃO – Ambiente, Energia e Desenvolvimento (INOVATION-Environment, Energy and Development)*, Instituto Pedro Nunes, Coimbra, Portugal, 28 May 2003.
“Wine fermentation monitoring Workshop”, in the NovTech Project, University of Bochum, Germany, 1-14 October 2003.
Scientific visit within the project “Evaluation/Validation of Novel Biosensors in Real Environmental and Food Samples” to the Laboratory of Prof. Dr. Giuseppe Palleschi at the University “Tor Vergata”, Rome, Italy, 16-22 December 2003.
“Workshop on ageing”, Hotel Meliá, Coimbra, Portugal, 1 October 2004.
“Second Measuring Session”, in the NovTech project, University of Bochum, Germany, 7-19 November 2004.

Scientific visit to the Laboratory of Prof. Dr. Laura Țugulea in the Department of Biophysics of the Faculty of Physics of the University of Bucharest, Bucharest, Romania, 8-22 December 2006.

“International School Structural Characterization of Nanostructures”, ISSCN’07, University of Aveiro, Portugal, 25-27 February 2007.

Seminar *Preparação de Amostras–Técnica de SPE (Sample Preparation-SPE Technique)*, Instituto Pedro Nunes, Coimbra, Portugal, 12 June 2007.

Seminar *Análise Técnica de Colunas de HPLC (Technical Analysis of HPLC Columns)*, Instituto Pedro Nunes, Coimbra, Portugal, 11 July 2007.

Marie Curie International Research Staff Exchange, secondment, in the project “*Electrochemical biosensors as new generation of biotechnological devices for food safety and quality monitoring*” in the Laboratory of Chemical Analysis and Biosensors of Professor Aziz Amine in the Faculty of Science and Techniques, University Hassan II, Mohammadia, Morocco, 2-30 November 2010.

Workshop HPLC, University of Coimbra, 27 November 2014 (*SoQuímica*).

Workshop Scanning Electron Microscopy, University of Coimbra, 14 February 2017 (*Dias de Sousa and TESCAN*).

Theses

BSc thesis: “*Laser Tissue Welding*”

MSc thesis: “*Electrochemical Oxidation of Quercetin*”

PhD thesis: “*Development of carbon film electrodes as electrochemical biosensors*”

Grants

01.03.2002-31.07.2002	Erasmus scholarship from University of Bucharest, Romania.
01.11.2002-31.10.2003	Young researcher scholarship from “NovTech European Project” (HPRN-CT-2002-00186).
01.11.2003-31.10.2007	PhD scholarship from Fundação para a Ciência e a Tecnologia (FCT), Portugal
01.12.2007-30.04.2014	Postdoctoral scholarship from FCT, Portugal.
01.05.2014-30.04.2015	Postdoctoral Research with FCT and FEDER grant from project LEC-PTDC/QEQ-MED/0586/2012
01.05.2015-present	Postdoctoral Researcher with FCT grant

Publications

- 1 - A.M. Oliveira Brett, M.E. Ghica
Electrochemical oxidation of quercetin
Electroanalysis, 2003, 15, 1745-1750.
- 2 - M.E. Ghica, A.M. Oliveira Brett
Electrochemical oxidation of rutin
Electroanalysis, 2005, 17, 313-318.
- 3 - M.E. Ghica, C.M.A. Brett
A glucose biosensor using methyl viologen redox mediator on carbon film electrodes
Anal. Chim. Acta, 2005, 532, 145-151.
- 4 - R. Pauliukaite, M.E. Ghica, C.M.A. Brett
A new, improved sensor for ascorbate determination at copper hexacyanoferrate modified carbon film electrodes
Anal. Bioanal. Chem., 2005, 381, 972-978.
- 5 - M.E. Ghica, C.M.A. Brett
Development of a carbon film electrode ferrocene-mediated glucose biosensor
Anal. Lett., 2005, 38, 907-920.
- 6 - S. De Luca, M. Florescu, M.E. Ghica, A. Lupu, G. Palleschi, C.M.A. Brett, D. Compagnone
Carbon film electrodes for oxidase-based enzyme sensors in food analysis
Talanta, 2005, 68, 171-178.
- 7 - M.E. Ghica, C.M.A. Brett
Development and applications of a bienzymatic amperometric glycerol biosensor based on a poly(neutral red) modified carbon film electrode
Anal. Lett., 2006, 39, 1527-1542.
- 8 - M.E. Ghica, C.M.A. Brett
Development of a novel glucose and pyruvate biosensors at poly(neutral red) modified carbon film electrodes. Application to natural samples
Electroanalysis, 2006, 18, 748-756.
- 9 - F.N. Crespilho, M.E. Ghica, M. Florescu, F.C. Nart, O.N. Oliveira Jr., C.M.A. Brett
A strategy for enzyme immobilization on layer-by-layer dendrimer-gold nanoparticle electrocatalytic membrane incorporating redox mediator
Electrochem. Commun., 2006, 8, 1665-1670.
- 10 - F.N. Crespilho, M.E. Ghica, V. Zucolotto, F.C. Nart, O.N. Oliveira Jr., C.M.A. Brett
Electroactive nanostructured membranes (ENM): synthesis and electrochemical properties of redox mediator-modified gold nanoparticles using a dendrimer layer-by-layer approach
Electroanalysis, 2007, 19, 805-812.

- 11 - R. Pauliukaite, M.E. Ghica, M. Barsan, C.M.A. Brett
Characterisation of poly(neutral red) modified carbon film electrodes; application as a redox mediator for biosensors
J. Solid State Electrochem., 2007, 11, 899-908.
- 12 - M.E. Ghica, R. Pauliukaite, N. Marchand, E. Devic, C.M.A. Brett
An improved biosensor for acetaldehyde determination using a bienzymatic strategy at poly(neutral red) modified carbon film electrodes
Anal. Chim. Acta, 2007, 591, 80-86.
- 13 - M.E. Ghica, C.M.A. Brett
Glucose oxidase inhibition in poly(neutral red) mediated enzyme biosensors for heavy metal determination
Microchim. Acta, 2008, 163, 185-193.
- 14 - F.N. Crespilho, M.E. Ghica, C.G. Caridade, O.N. Oliveira Jr., C.M.A. Brett
Enzyme immobilisation on electroactive nanostructured membranes (ENM) optimised architectures for biosensing
Talanta, 2008, 76, 922-928.
- 15 - M.E. Ghica, C.M.A. Brett
Poly(brilliant cresyl blue) modified glassy carbon electrodes: electrosynthesis, characterisation and application in biosensors
J. Electroanal. Chem., 2009, 629, 35-42.
- 16 - R. Pauliukaite, M.E. Ghica, O. Fatibello-Filho, C.M.A. Brett
A comparative study of different crosslinking agents for the immobilisation of functionalised carbon nanotubes within a chitosan film supported on a graphite-epoxy composite electrode
Anal. Chem., 2009, 81, 5364-5372
- 17 - M.E. Ghica, R. Pauliukaite, O. Fatibello-Filho, C.M.A. Brett
Application of functionalised carbon nanotubes immobilised into chitosan films in amperometric enzyme biosensors
Sens. Actuat. B, 2009, 142, 308-315.
- 18 - R. Pauliukaite, M.E. Ghica, M.M. Barsan, C.M.A. Brett
Phenazines and polyphenazines in electrochemical sensors and biosensors
Anal. Lett., 2010, 43, 1588-1608.
- 19 - R. Pauliukaite, M.E. Ghica, O. Fatibello-Filho, C.M.A. Brett
Electrochemical impedance studies of chitosan-modified electrodes for application in electrochemical sensors and biosensors
Electrochim. Acta, 2010, 55, 6239-6247.
- 20 - R. Pauliukaite, M.E. Ghica, O. Fatibello-Filho, C.M.A. Brett
Graphite-epoxy electrodes modified with functionalised carbon nanotubes and chitosan for the rapid electrochemical determination of dipyrone
Comb. Chem. High Throughput Screen, 2010, 13, 590-598.

- 21 - M.E. Ghica, C.M.A. Brett
The influence of carbon nanotubes and polyazine redox mediators on the performance of amperometric enzyme biosensors
Microchim. Acta, 2010, 170, 257-265.
- 22 - A.R. Gonçalves, M.E. Ghica, C.M.A. Brett
Preparation and characterisation of poly(3,4-ethylenedioxythiophene) and poly(3,4-ethylenedioxythiophene)/poly(neutral red) modified carbon film electrodes, and application as sensors for hydrogen peroxide
Electrochim. Acta, 2011, 56, 3685-3692.
- 23 - D.M. Fernandes, M.E. Ghica, A.M.V. Cavaleiro, C.M.A. Brett
Electrochemical impedance study of self-assembled layer-by-layer iron-silicotungstate/poly(ethylenimine) modified electrodes
Electrochim. Acta, 2011, 56, 7940-7945.
- 24 - B.C. Janegitz, R. Pauliukaite, M.E. Ghica, C.M.A. Brett, O. Fatibello-Filho
Direct electron transfer between glucose oxidase and a glassy carbon electrode modified with functionalized carbon nanotubes within a dihexadecylphosphate film
Sens. Actuat. B, 2011, 158, 411-417.
- 25 - A.C. Torres, M.E. Ghica, C.M.A. Brett
Poly(neutral red)/cholesterol oxidase modified carbon film electrode for cholesterol biosensing
Electroanalysis, 2012, 24, 1547-1553.
- 26 - A.C. Torres, M.E. Ghica, C.M.A. Brett
Design of a new hypoxanthine biosensor – xanthine oxidase modified carbon film and multi-walled carbon nanotube/carbon film electrodes
Anal. Bioanal. Chem., 2013, 405, 3813-3822.
- 27 - M.E. Ghica, C.M.A. Brett
A simple and efficient epinephrine sensor based on carbon nanotube modified carbon film electrodes
Anal. Lett., 2013, 46, 1379-1393.
- 28 - M.E. Ghica, R.C. Carvalho, A. Amine, C.M.A. Brett
Glucose oxidase inhibition sensor for heavy metals at carbon film electrodes modified with cobalt and copper hexacyanoferrate
Sens. Actuat. B-Chem., 2013, 178, 270-278.
- 29 - M.E. Ghica, Y. Wintersteller, C.M.A. Brett
Poly(brilliant green)/carbon nanotube – modified carbon film electrodes and application as sensors
J. Solid State Electrochem., 2013, 17, 1571-1580.
- 30 - D. Kul, M. E. Ghica, R. Pauliukaite, C.M.A. Brett
A novel amperometric sensor for ascorbic acid based on poly(Nile blue A) and functionalised multi-walled carbon nanotube modified electrodes
Talanta, 2013, 111, 76-84.

- 31 - V. Pifferi, M.M. Barsan, M.E. Ghica, L. Falciola, C.M.A. Brett
Synthesis, characterization and influence of poly(brilliant green) on the performance of different electrode architectures based on carbon nanotubes and poly(ethylenedioxythiophene)
Electrochim. Acta, 2013, 98, 199-207.
- 32 - A. Attar, M.E. Ghica, A. Amine, C.M.A. Brett
Poly(neutral red) based hydrogen peroxide biosensor for chromium determination by inhibition measurements
J. Hazard. Mater., 2014, 279, 348-355.
- 33 - M.M. Barsan, M.E. Ghica, C.M.A. Brett
Electrochemical Biosensors
Electrochemical sensors in Portable Biosensing of Food Toxicants and Environmental Pollutants, D.P. Nikolelis, T. Varzakas, A. Erdem, G.-P. Nikoleli, CRC Press, 2014, Chapter 2, pp 33-69.
- 34 - M.E. Ghica, C.M.A. Brett
Poly(brilliant green) and poly(thionine) modified carbon nanotube coated carbon film electrodes for glucose and uric acid biosensors
Talanta, 2014, 130, 198-206.
- 35 - A. Attar, M.E. Ghica, A. Amine, C.M.A. Brett
Comparison of cobalt hexacyanoferrate and poly(neutral red) modified carbon film electrodes for the amperometric detection of heavy metals based on glucose oxidase enzyme inhibition
Anal. Lett., 2015, 48, 659-671.
- 36 - J. Zavazalova, M.E. Ghica, K. Peckova, J. Barek, C.M.A. Brett
Carbon-based electrodes for sensitive electroanalytical determination of aminonaphthalenes
Electroanalysis, 2015, 27, 1556-1564.
- 37 - M.M. Barsan, M.E. Ghica, C.M.A. Brett
Electrochemical sensors and biosensors based on redox polymer / carbon nanotube modified electrodes: a review
Anal. Chim. Acta, 2015, 881, 1-23.
- 38 - M.E. Ghica, G.M.M. Ferreira, C.M.A. Brett
Poly(thionine) - carbon nanotube modified carbon film electrodes and application to the simultaneous determination of acetaminophen and dipyrone
J. Solid State Electrochem., 2015, 19, 2869-2881.
- 39 - S.M.C. Gomes, M.E. Ghica, I.A. Rodrigues, E. De Souza Gil, A.M. Oliveira-Brett
Flavonoids electrochemical detection in fruit extracts and total antioxidant capacity evaluation
Talanta, 154 (2016) 284-291.
- 40 - H.S. Magar, M.E. Ghica, M.N. Abbas, C.M.A. Brett
A novel sensitive amperometric choline biosensor based on multiwalled carbon nanotubes and gold nanoparticles
Talanta, 167 (2017) 462-469.

41 - H.S. Magar, M.E. Ghica, M.N. Abbas, C.M.A. Brett
Highly sensitive choline oxidase enzyme inhibition biosensor for lead ions based on
multiwalled carbon nanotube modified glassy carbon electrodes
Electroanalysis, in press.