

## BOOK OF ABSTRACTS

3<sup>rd</sup> International Caparica  
Conference on Pollutant  
Toxic Ions & Molecules 2019

4<sup>th</sup> - 7<sup>th</sup> November 2019  
Caparica, Portugal



3<sup>RD</sup> INTERNATIONAL CAPARICA CONFERENCE ON POLLUTANT TOXIC IONS & MOLECULES 2019

**ISBN:** 978-989-54470-3-9

**Author:** Carlos Lodeiro

**Co-author(s):** José Luís Capelo; Elisabete Oliveira ; Javier Fernández Lodeiro; Hugo Miguel Santos; Adrián Fernández Lodeiro; Cristian Cuerva

**Printed by:** Proteomass Scientific Society (Portugal)

**Printage:** 25 Copies

**Electronic support:** 200 PDF/ PDF/A

**Design:** Sara Oliveira

Caparica - Portugal, 2019

## Mercury levels and neurotoxic potential of house dust extracts

Rafael Barros<sup>1</sup>, Ana Catarina Sousa<sup>1,2,3\*</sup>, Miguel Nepomuceno<sup>4</sup>, João C.G. Lanzinha<sup>4</sup>,  
Ana Clara Cristovão<sup>1,5</sup>, M. Ramiro Pastorinho<sup>1,2,6</sup>

<sup>1</sup>Health Sciences Research Centre (CICS), University of Beira Interior, Portugal

<sup>2</sup>NuESA, Faculty of Health Sciences, University of Beira Interior, Portugal

<sup>3</sup>CICECO - Aveiro Institute of Materials, Chemistry Department, University of Aveiro, Portugal

<sup>4</sup>LABSED, C-made, Faculdade de Engenharia, Universidade da Beira Interior, Portugal

<sup>5</sup>4NeuroSoV - UBImedical, University of Beira Interior, Portugal

<sup>6</sup>Department of Biology, University of Évora, 7002-554 Évora, Portugal

\*email: anasousa@ua.pt

The quality of the indoor environment is affected by a set of factors that include, among others, the presence of environmental contaminants. These contaminants are potentially toxic and can negatively affect the health of the inhabitants. Therefore, their study is fundamental, especially considering that in Western societies about 90% of the time is spent inside what has been called the “built environment”. The evaluation of the indoor environment contamination has been increasingly performed using dust. This matrix acts as a reservoir and repository of chemicals that are simultaneously protected from the degradation processes occurring naturally in the external environment. Available studies are mainly based on chemical analyzes that do not allow to evaluate the toxicity in an integrated way, making the implementation of toxicological tests an imperative. In this work, we evaluated the levels of mercury, a well-known neurotoxicant, in house dust extracts collected under the framework of the 6x60x6 case study. The cytotoxic potential of these dust extracts were also analyzed in the dopaminergic neural cell line N27. The obtained results disclose a moderate neurotoxic potential of the different dust extracts analyzed and a statistically significant correlation between cell viability and mercury concentrations ( $p < 0.05$ ,  $r = 0.900$ ).

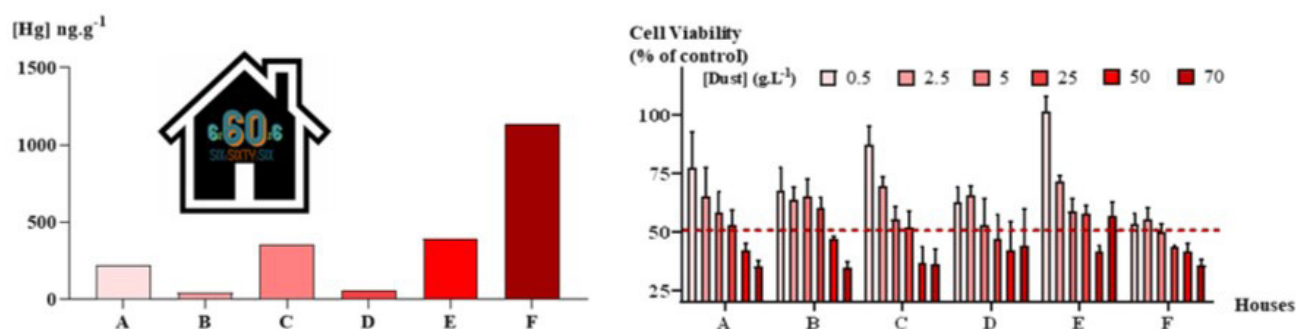


Figure 1. Mercury levels (ng.g<sup>-1</sup>) in dust extracts from the six surveyed houses (A-F) and the neurotoxic potential of the dust extracts towards the N27 cell line (measured by the CCK8 assay).

### Acknowledgements:

This work was funded by project ICON (Ref. CENTRO-01-0145-FEDER-000013, project funded by FEDER funds through POCI-COMPETE 2020). Further funding was provided by the project CICECO-Aveiro Institute of Materials, FCT Ref.UID/CTM/50011/2019 and Universidade de Aveiro, in the scope of the framework contract foreseen in the numbers 4, 5 and 6 of article 23, of the Decree-Law 57/2016, of August 29, changed by Law 57/2017, of July 19 (A.C. Sousa).