

## PhD Candidate Profile

**Name:**

Dawany Dionisio

**Research Group:**

- Electrochemical and Environmental Engineering (Spain)
- Laboratory of Interfacial Electrochemistry (Brazil)

**Research Centre (if relevant):**

- Faculty of Science and Chemical Technologies (Spain)
- São Carlos Institute of Chemistry (Brazil)

**Department/School(s) (if relevant):**

- Chemical Engineering Department (Spain)
- Physical Chemistry Department (Brazil)

**College:**

Double degree co-supervised:

- University of Castilla La Mancha, Ciudad Real, Spain
- University of São Paulo, São Paulo, Brazil

**Supervisor(s):**

- Dr. Manuel Andrés Rodrigo Rodrigo
- Dr. Artur de Jesus Motheo

**Funding body:**

São Paulo Research Foundation - FAPESP

**Area (field) of study:**

Electrochemical degradation of cosmetic preservatives

**Thesis Title:**

*Interfering effect of organic compounds on the degradation of methyl paraben by electrochemical processes in aqueous media*

**Abstract:**

Industrial and domestic wastewater contain several molecules classified as endocrine disruptor compounds (EDCs). These chemicals can be found in many household and industrial products such as pesticides, pharmaceuticals and cosmetics. Conventional wastewater treatments can only partially remove these pollutants and, as a result, humans are often exposed to EDCs by ingestion of contaminated water and food. Thus, there is a necessity to study and develop alternative wastewater treatments, aiming the complete removal of EDCs from environment. The aim of this Ph.D. is to couple electrochemical process with sonochemical technology to remove preservatives (methyl paraben, diazolidinyl



## PhD Candidate Profile

urea and propylene glycol) from aqueous media. Considering that wastewater is a complex matrix, it is interesting to evaluate the interfering effect of one pollutant on the degradation of other organic compound. Furthermore, in order to evaluate the influence of ultrasound on electrochemical oxidation, different operational features may be studied.

### Collaborations:

N/A

### Publications:

N/A

### Presentations:

Leriano, M. J. M.; Dionisio, D.; Motheo, A. J. Electrochemical methods applied to oxidative degradation of parabens. XXII International Symposium of Scientific Initiation (SIICUSP), 2014. São Carlos, SP, Brazil. *Poster*.

Lima, N. S.; Dionisio, D.; Motheo, A. J.; Alsina, O. L. S.; Cavalcanti, E. B. Electrochemical oxidation of metolachlor in model effluent. III Electrochemical Meeting of Sergipe (ENELSE), 2015. Aracajú, SE, Brazil. *Poster*.

Dionisio, D.; Motheo, A. J. Degradation of methyl paraben by electrochemical oxidation coupled with sonolysis. XX Brazilian Symposium of Electrochemistry and Electroanalytical (SIBEE), 2015. Uberlandia, MG, Brazil. *Oral Communication*.

Leriano, M. J. M.; Dionisio, D.; Motheo, A. J. Application of Fenton process to the degradation of the endocrine disruptor methyl paraben. 38<sup>th</sup> Brazilian Chemical Society Annual Meeting (RASBQ), 2015. Águas de Lindóia, SP, Brazil. *Poster*.

Leriano, M. J. M.; Dionisio, D.; Motheo, A. J. Application of dimensionally stable anode (DSA) to the oxidation of methyl paraben in chloride medium. XXIII International Symposium of Scientific Initiation (SIICUSP), 2015. São Carlos, SP, Brazil. *Poster*.

Dionisio, D.; Leriano, M. J. M.; Motheo, A. J. Electrochemical degradation of propylene glycol using a DSA electrode. 2<sup>nd</sup> International Seminar of Industrial Innovation in Electrochemistry, 2016. Curitiba, PR, Brazil. *Poster*.