15º Encontro Peptídico Ibérico
15th Iberian Peptide Meeting

10-12 February 2016

Faculdade de Ciências
Universidade do Porto
Porto • Portugal

Book of Abstracts

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"Peptides: a world of possibilities"

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Book of abstracts of the 15th Iberian Peptide Meeting
XV EPI – 10th-12th February 2016, Porto, Portugal
University of Porto, Faculty of Sciences
Porto, Portugal

Editor
Paula Gomes

ISBN
978-989-206374

Publisher
Organizing Committee of XV EPI

Printing
MEDISA – Edições e Divulgações Científicas, Lda.

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OC 18 - Bioactive peptides of the Cry1Ab16 toxin from *Bacillus thuringiensis* by nanodevices films for potential biotechnological applications

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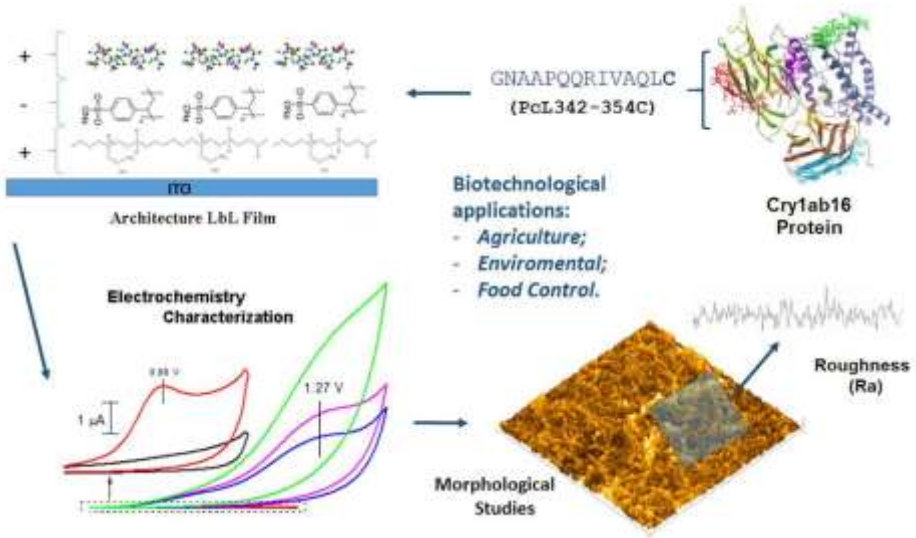
Peptides are potential candidates to meet the needs of the modern world in relation to diagnosis, disease monitoring, quality control in industry, and more recently, detection of genetically modified organisms (GMOs) and food security through the development of biosensors.[1] Cry1Ab16 is a toxin of crystalline insecticidal proteins family that has been widely used in GMOs to gain resistance to pests. Recently, many studies have focused on evaluating the potential environmental impact of this toxin, including the impact on aquatic environments. Moreover, this toxin has been detected in maternal and fetal samples during pesticide exposure studies related to genetically modified food. For the first time, in this study, peptides derived from the immunogenic Cry1Ab16 toxin (from *Bacillus thuringiensis*) were immobilized as layer-by-layer films.[2] Given the concern about food and environmental safety, a peptide with immunogenic potential, PcL342-354C, was selected for electrochemical characterization. In addition, an attempt was made to optimize the electrochemical signal of the peptide through interspersion with different natural or synthetic polymers. Finally, the system was characterized using various morphological and spectroscopic techniques such as AFM, UV-Vis, XRD, and FTIR. An ITO/PEI/$(PSS/PcL342\text{-}354C)_n$ film proved to be an excellent candidate for applications in electrochemical sensors and other biotechnological applications for GMOs and environmental indicators.



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Acknowledgements

This work was partially supported by grants from FAPEPI, CAPES, and CNPq. AP is grateful to FCT by her grant SFRH/BD/97995/2013, financed by POPH – QREN – Tipologia 4.1 – Formação Avançada, subsidized by Fundo Social Europeu and Ministério da Ciência, Tecnologia e Ensino Superior. This work has also been supported by FCT through grant number PEst-C/EQB/LA0006/2011. ACM is indebted to FAPESP (Grant 2014/02282-6). YPM is grateful to CNPq (Grant 302674/2010-1).