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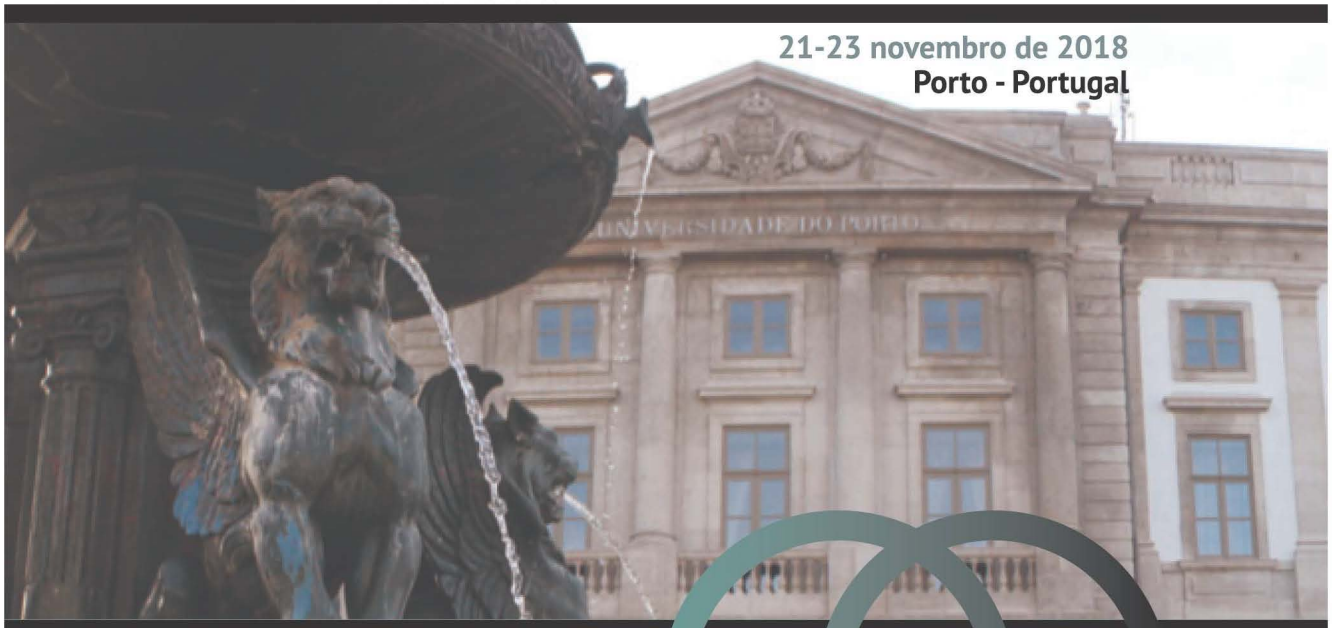
QUÍMICA



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Este livro de atas foi produzido a partir dos trabalhos submetidos diretamente pelos autores. Apenas foram introduzidas pequenas alterações de edição, o que não alterou o conteúdo científico. A versão final online foi estabelecida para o XXIV Encontro Luso-Galego de Química, de acordo com o modelo publicado. Os autores são responsáveis pelo conteúdo científico dos seus trabalhos.

COMUNICAÇÕES ORAIS

23 NOVEMBRO 2018 - Sexta-feira

16:00-17:30

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QI 4	**Functional lamellar coordination polymers,** Ricardo Mendes
QI 5	**Protective effects of Mn(III)-Schiff base-dicyanamide complexes on H2O2-induced oxidative stress: catalase mimics or radical scavengers?,** Laura Rodríguez-Silva
QI 6	**From molecular to supramolecular catalysts for water splitting,** Marcelino Maneiro
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BB 12	**Volatiles and α- and -acids: comparative analysis of hops clones, spontaneous and cultivars, in Bragança region,** Hugo Goes
BB 13	**Evaluation of antioxidant function at renal level in respnse to chronic exercise and age,** Paulo Nunes

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NN 9	**Metal-free nanomaterials for the oxygen reduction reaction,** Sofia Meirinho
NN 10	**Hydrophilic carbon nanomaterials - a novel insight into antioxidant therapeutic applications?,** Andreia Veloso
NN 11	**Rational optimization of the microwave-assisted synthesis of bright ternary AgInS2/ZnS quantum dots,** José Soares
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QIE 1	**Phase behavior of binary mixtures of fames and alkanes,** Nuno Branco
QIE 2	**High pH Reversed-Phase Preparative Chromatographic Separation of Nadolol Racemates using C18 Adsorbents,** R. Arafah
QIE 3	**Innovative photonic crystals and phosphors based coatings for wood,** Kevin Tomaz
QIE 4	**Surface Tension for the ternary system dimethyl carbonate + p-xileno+ n-decane in function of the temperature (288.15 K – 308.15 K),** Santiago Castelo
QI9	**Crown ether palladium compounds: a strategy for encapsulating potassium cations in crown ether rings,** Fátima Lucio-Martinez

High pH Reversed-Phase Preparative Chromatographic Separation of Nadolol Racemates using C18 Adsorbents

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ORAL

In recent years, the continuous improvement of preparative liquid chromatographic techniques, make easier the resolution of complex multicomponent chiral drugs, into single pure stereoisomers, by means of combining different strategies and using chiral and achiral adsorbents. Nadolol is one representative beta-blocker pharmaceutical drug prescribed worldwide for relieve of several diseases related with the cardiovascular system. This pharmaceutical chiral drug represents a very interesting case-study since it is composed by four stereoisomers, being a mixture of two racemates, i.e., a mixture of two pairs of enantiomers. The complete separation of all the four nadolol stereoisomers can be achieved using alternative strategies, different types of separation sequences and techniques, such as, the use of different adsorbents (chiral and achiral stationary phases), and the correspondent mobile phase optimization at both normal and reversed-phase modes [1-3].

In this work, a large set of experimental results will be presented for the separation of the two nadolol racemates using a commercial Azura preparative HPLC system, equipped with two 250 mL/min pump heads. The fixed-bed separation was carried out through a sequence of multiple injections, optimized by taking into account the retention time of both racemates using an XBridge Prep OBD C18 column with preparative dimensions (250mm ID x 30mm L) and with a particle size diameter of 10 mm [4]. Experimental results will show the optimization of the mobile phase composition and injection time. The experimental results presented in this work stresses out the advantage of using a first achiral reversed-phase chromatographic separation step to perform the separation of the two nadolol racemates.

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REFERENCES:

[1] R. Arafah, A. Ribeiro, A. Rodrigues, L. Pais, XXII Encontro Luso-Galego de Química, Bragança, Portugal, 2016.

[2] R. Arafah, A. Ribeiro, A. Rodrigues, L. Pais, 10º Encontro Nac. de Cromatografia, Bragança, Portugal, 2017.

[3] A. Ribeiro, R. Arafah, A. Rodrigues, L. Pais, XXV Encontro Nac. da Sociedade Portuguesa de Química, Lisboa, Portugal, 2017.

[4] R.S. Arafah, A.E. Ribeiro, A.E. Rodrigues, L.S. Pais, XXII Encontro Luso-Galego de Química, Bragança, Portugal, 2016, QIE9.