ILMAT 2023

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7TH INTERNATIONAL Conference on Ionic Liquid Based Materials

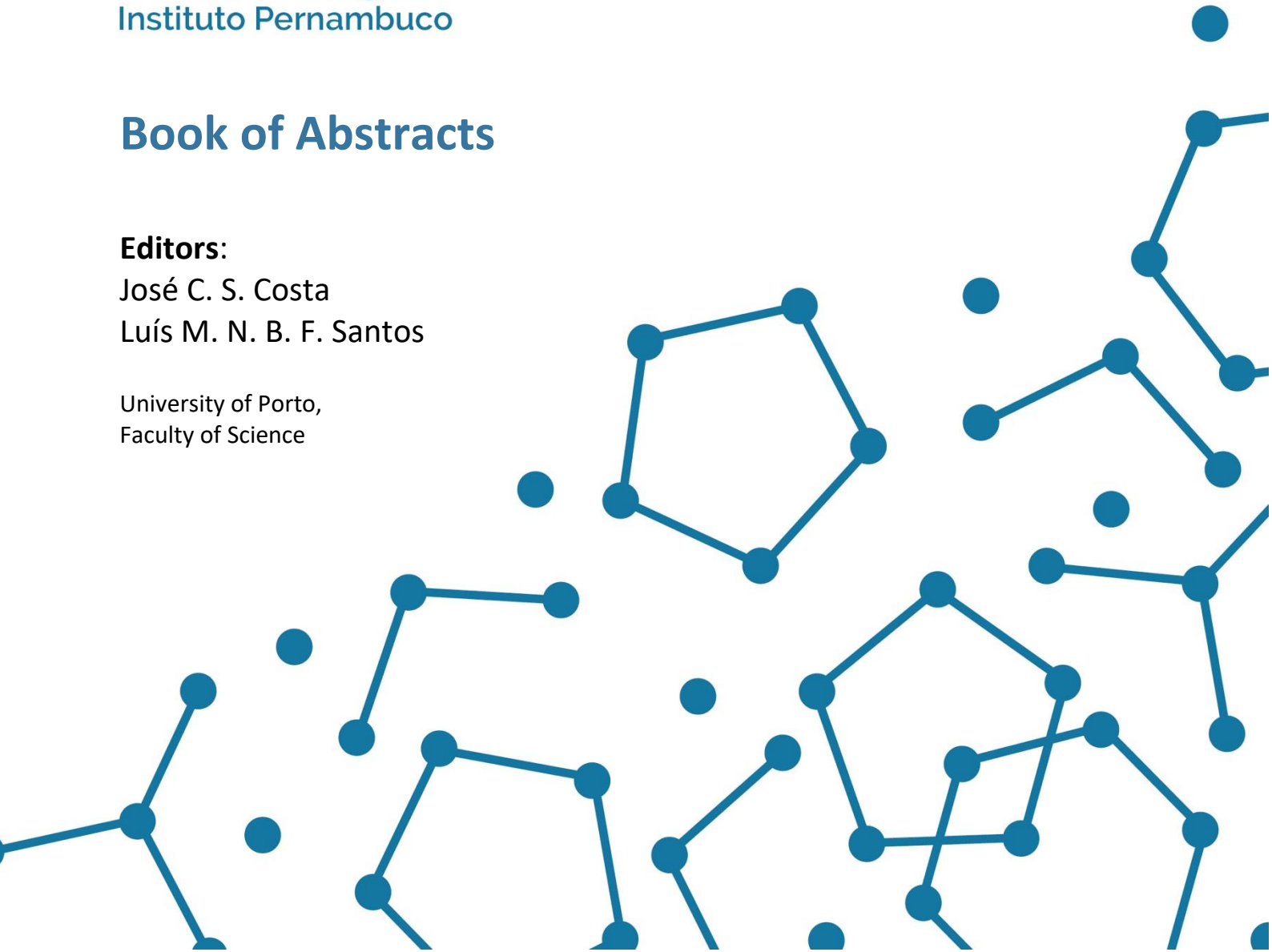
21st to 24th November 2023

Porto, Portugal
Instituto Pernambuco

Book of Abstracts

Editors:
José C. S. Costa
Luís M. N. B. F. Santos

University of Porto,
Faculty of Science



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Synthesis and physicochemical characterization of antimalarial surface-active ionic liquids

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Ionic liquids are a particular class of compounds that attract interest in medicinal chemistry due to the simplicity of their preparation. Novel structures with biological activity can be achieved through simple, cost-effective reactions.[1] Reusing old ionizable drugs and improving their characteristics can be achieved economically and simply by mixing them with molecules of opposite charge. This approach is attractive for reviving old antimalarials, not only because of the prevalence of malaria in low- to middle-income countries, but also because several of these drugs are associated with malaria parasite resistance. In this context, our work has been focusing on synthesizing ionic liquids with potential antimalarial activity by mixing antimalarial aminoquinolines, specifically chloroquine, and primaquine, with natural lipids.[2, 3] More recently, using an acid-base reaction between chloroquine and bile acids (Figure 1), we synthesized surface-active ionic liquids (SAILs), which proved to possess significant antiplasmodial activity *in vitro*. The presence of an amphiphilic anion in the ionic pair confers surface-active and self-aggregation properties to the ionic liquids. The interfacial and aggregations properties of these SAILs have been characterized by surface tension, electric conductivity, dynamic light scattering, and differential scanning microcalorimetry. Moreover, the interactions of SAILs with micelles of the block copolymer F127 have been studied with the aim of designing an efficient, robust, and biocompatible nanocarrier system for the encapsulation and *in vivo* release of these antimalarial ionic liquids.

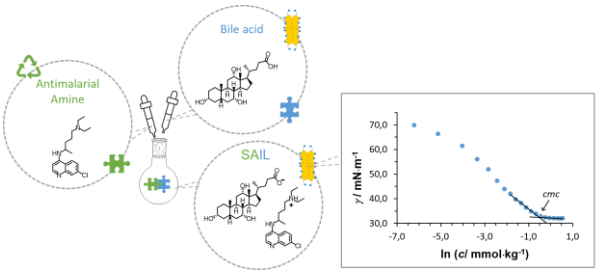

Figure 1: Synthesis and surface tension assays of a SAIL derived from the antimalarial drug chloroquine and cholic acid.

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