Title: **Synthesis of a polymyxin analogue to use as an antibiotic against Gram-negative bacteria.**

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Multi-drug resistant bacteria has become a global emergence. Each passing day antibiotics are becoming less effective, causing more deaths as years pass. This threat is due to mutations in bacteria and, for that, research for new antibiotics is needed.

Polymyxins are cyclopeptide antibiotics used from 1940s to 1970s. Due to its toxicity, in 1970s their usage was abandoned. Nowadays, polymyxins are being used as last-line antibiotics because they are active, with great results, to Gram-negative bacteria accompanied with low resistance.

Researchers are studying the design and preparation of polymyxins' analogues. The aim of the analogues is to reduce the toxicity without losing the antimicrobial activities. In this work, an analogue is synthesised by solid phase peptide synthesis. The protections strategy used is Fmoc/^{t}Bu, an orthogonal strategy. The peptide is characterized by HPLC and mass spectrometry.

The synthesis used needs to be improve in specific coupling reactions of the sequence of the peptide.

Keywords: Resistant bacteria, cyclopeptide antibiotics, polymyxin, toxicity, solid phase peptide synthesis.