

COLD PLASMA COPOLYMER WITH ANTIMICROBIAL ACTIVITY DEPOSITED ON THREE DIFFERENT SUBSTRATES

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A good strategy to prevent early deposition of bacteria that can form biofilms is the application of antimicrobial coatings to existing surfaces, however this field has been little explored and coatings are often non uniform in thickness. A homogeneous film of R-Carvone-Octadiene (ppCop) was deposited on different substrates (coverslip, minced coverslip and fabric) by cold plasma copolymerization to study the influence of the substrate on antimicrobial activity and show clues about the influence of octadiene on copolymerization. The ppCop showed better antimicrobial activity results on the substrate with higher effective contact area, highlighting the influence of this variable on antimicrobial activity. The ppCop deposited on minced coverslip showed an inhibition of *E. coli* and *S. aureus* bacteria by $48.69 \pm 0.08\%$ and $49.31 \pm 0.58\%$ respectively, with an average roughness of 14.1 ± 0.02 nm and a static water contact angle of $79 \pm 0.4^\circ$. The ppCop showed no cytotoxicity to the human cell line.

Keywords: antimicrobial, plasma, R-Carvone., octadiene, biofilm

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