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BOOK OF ABSTRACTS



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**ANTIBACTERIAL ACTIVITY OF COPPER/POLYPYRROLE
NANOCOMPOSITE**

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ABSTRACT

A novel and favorable antibacterial agent as a combination of copper nanoparticles (CuNPs) and polypyrrole (PPy) is presented. By simple *in situ* polymerization method, copper/polypyrrole (Cu/PPy) nanocomposite with spherical CuNPs, around 25 nm in diameter, uniformly dispersed throughout PPy matrix with granular morphology, was characterized and subjected to determination of antibacterial activity toward bacteria *Escherichia coli* and *Staphylococcus aureus*. Knowing that when acting alone, CuNPs and PPy have already shown antimicrobial response, their mutual and synergetic engagement against bacteria in this survey is somewhat expected. After a twenty-four-hour interaction with *S. aureus*, already 2 ppm of Cu/PPy with only 9.45 wt% content of Cu is acting almost completely cidal, with 99.17% of bacterial growth inhibition. Such nanocomposite could easily find application in water disinfection, soil sterilization and food preservation.