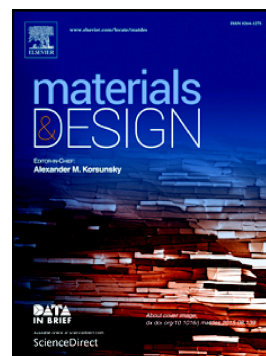


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Facile Fabrication of Antibacterial Electrospun Nanofibers with Vancomycin-Carbon Nanotube via Ultrasonication Assistance

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Abstract: The aggregation of multi-walled carbon nanotubes (MWCNT) into the polymer matrix and weak bactericidal property of MWCNT usually limit the application of MWCNT in the infection resistance. To solve the above problem, vancomycin hydrochloride modified multi-walled carbon nanotube (Van-MWCNT) via the chemical reaction of the MWCNT's inherent carboxyl group and the Van's amide group were well designed and synthesized. Then, Van-MWCNT was facilely *in-situ* anchored onto thermoplastic polyurethane (TPU) electrospun nanofibers (TPU/Van-MWCNT) by ultrasonication assistance to achieve the bactericidal property. The above preparation process was facile, non-toxic with the green solvent-water as medium. At the same time, it also effectively reduced the aggregation of Van-MWCNT into the electrospun nanofibers. The minimal inhibitory concentration (MIC) of Van-MWCNT against *S. aureus* was obviously lower than that of MWCNT. And the TPU/Van-MWCNT exhibited excellent antibacterial properties evaluated

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