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| **Published Researches**  **الأبحاث المنشورة** | |
| Title  **عنوان البحث** | Fabrication of multifunctional composite nanofibrous membranes for  antibacterial, waterproof, and broad-range microwave absorption properties |
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| Abstract  **خلاصة** | The scientific community has shown great interest in high-performance multifunctional nanomembranes due to their increasing demand. Nevertheless, the development of multifunctional composite nanofibrous membranes faces a limitation in achieving consistent and optimal performance with balancing conflicting requirements across multiple functionalities. However, addressing this challenge, a single composite nanofibers membrane has been successfully fabricated, demonstrating effective antibacterial activity, waterproofing properties, and excellent electromagnetic (EM) wave absorption. The multifunction composite nanofibers (CNFs0.6-Co@Fe3) exhibited remarkable microwave absorption performance, with a reflection loss (RL) of 29.10 dB at 15–20 GHz and a thickness of 1.5 mm. Additionally, the nanocomposite displayed flexibility, hydrophobicity with a water contact angle larger than 95° and low surface energy, and significant antibacterial properties against Escherichia coli (E. coli). These multifunctional nanocomposites offer a unique combination of outstanding EM wave absorption, cost-effective fabrication, environmental friendliness, and lightweight characteristics, holding great promise for future applications in nanocomposite products |