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## Fabrication, characterization and determination of biological activities of poly ( $\epsilon$ -Caprolactone)/chitosan-caffeic acid composite nano/microfiber mat for wound dressing application

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**E**lectrospinning In the present study, we designed composite nano/microfiber mats consisting of poly ( $\epsilon$ -caprolactone) (PCL), chitosan (CH), or chitosan-caffeic acid conjugate (CCA) fabricated by an electrospinning technique for wound dressing application. The average diameters of PCL, PCL/CH, and PCL/CCA composite nano/microfiber mats are  $1.30\pm 1.07$ ,  $1.20\pm 1.22$ , and  $0.94\pm 0.68$   $\mu\text{m}$ , respectively. Based on UTM analysis, the PCL/CCA composite significantly increases tensile properties compared with the PCL and PCL/CH composites. Additionally, initial cell attachment and cell proliferation of the composites using neonatal human dermal fibroblast (NHDF-neo cells), as well as the anti-microbial effect against *Staphylococcus aureus*, was investigated. The PCL/CCA composite shows significantly higher initial cell attachment and cell proliferation than the PCL and PCL/CH composites, and a high anti-microbial effect was observed compared to the PCL and PCL/CH composites. Based on these results, the CCA is demonstrated to be good supplemental bioactive agent for wound dressing applications and skin tissue engineering.

### Biography

Gun-Woo Oh has studied in Interdisciplinary Program of Biomedical, Mechanical & Electrical Engineering from Pukyong National University in Busan, Korea. He also has worked in Marine Biomedical Science lab where he is able to experiment constantly on cells, synthesis, extraction and others, and the adviser is Won-Kyo Jung and then he applied for Doctoral course in the same University and lab.

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