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Antibacterial activities of crude extract from *Punica granatum* peels and its application

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Fruit peels contain many useful substances which can be used as antioxidant, antimicrobials, and antiviral, etc. In this work, *Punica granatum* peels were cleaned, extracted with water and freeze dried into powder. The crude extracts were characterized using FTIR. The spectra represented the peaks at $3,271\text{ cm}^{-1}$ (OH stretching), $1,610\text{ cm}^{-1}$ (N-C=O stretching of amine groups) and $1,375\text{ cm}^{-1}$ (C=O stretching of ketone or aldehyde) of polyphenol. Antibacterial activities of water crude extracts were also evaluated by agar diffusion method. It was found that *Staphylococcus aureus* ATCC 25923, *Staphylococcus aureus* (MRSA) DMST 20654, *Staphylococcus epidermidis* ATCC 12228 and *Acinetobacter lwoffii* ATCC 15309 were inhibited. Crude extracts from *Punica granatum* peels showed high efficiency to be used as natural antibacterial agent with low cost. For application, polyvinyl alcohol and chitosan solution (20:1 in volume) were mixed with crude extracts from *Punica granatum* peels and formed into nanofiber using electrospinning technique. SEM micrograph showed structure of nanofiber with some beads. Polyvinyl alcohol and chitosan nanofiber trends to be a suitable matrix for releasing of *Punica granatum* peel extracts and applied as wound dressing.

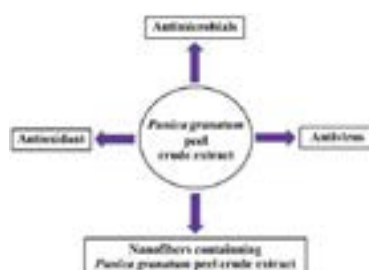


Figure: *Punica granatum* peel crude extract can be applied in many ways.

Biography

Neeranut Kuanchertchoo has her expertise in waste utilizations and applications in biomedical materials as well as water purification. Her research emphasizes on development of nanofiber membranes using electrospinning technique. Her laboratory skills are synthesis, characterization and application in biomaterials, separations and purification. She earns many years experiences in both teaching and performing researches.

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