Biomedical Engineering Seminar Series

2nd Semester, Academic Year 2016

Date: January 31, 2017
Time: 10.00-11.00 AM
Room 6373, 3rd level, Building 3,
Department of Biomedical Engineering,
Faculty of Engineering;
Mahidol University

Dr. Anisha Majumdar,

Ph.D. (Bacteriolytic Therapy of Tumours),
University of Ulster, England
Mahidol University Postdoc Scholarship

"In vitro wound healing and cytotoxic effects of sinigrin-phytosome complex and skin permeation of sinigrin"

Sinigrin is a class of glucosinolates found naturally in plants of the Brassicaceae family. Studies have shown that sinigrin possesses anticancer, antibacterial and anti-inflammatory activities. Since its efficacy has not been explored on wound healing, we examined the effect of sinigrin on normal human keratinocytes cells (HaCaT) cells. It was aimed to formulate sinigrin into phytosome to form a sinigrin–phytosome complex and study the wound healing and cytotoxic activities on HaCaT cells and melanoma cells (A-375). The formation of the sinigrin–phytosome complex was confirmed by DSC and FTIR analysis. The in vitro drug release indicated a controlled and sustained release of sinigrin from the phytosome complex. The sinigrin–phytosome complex significantly exhibited wound-healing effects when compared to sinigrin alone. The sinigrin–phytosome complex displayed minimal toxicity towards HaCaT cells and at higher concentrations, it showed potent activity towards A-375 cells. The results indicated that sinigrin–phytosome complex augmented the therapeutic potential of sinigrin towards the wound healing activity and this approach should be explored further for cancerous wound treatment. The skin permeation studies revealed that sinigrin-phytosome complex statistically significantly enhanced the delivery of sinigrin into the stratum corneum-epidermis when compared to free sinigrin.

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