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**The electro-responsive drug delivery from salicylic acid -loaded polyacrylamide hydrogels** SUMONMAN NIAMLANG, ANUVAT SIRIVAT, Chulalongkorn University — The release mechanisms and the diffusion coefficients of salicylic acid -loaded polyacrylamide hydrogels were investigated experimentally by using a modified Franz-Diffusion cell at the temperature of 37 °C to determine the effects of crosslinking ratio and electric field strength. The fabricated hydrogels retain their physical shapes and sizes during the experiments along with data reproducibility. A significant amount of salicylic acid is released within 48 hours from the hydrogels of various crosslinking ratios with and without electric field; the release profile follows the  $Q$  vs.  $t^{1/2}$  relationship. Diffusion coefficients, as determined from the Higuchi equation, increase with electric field strength and reach maximum values at electric field strength of 0.1 V due to the electrophoresis of salicylic acid and become saturated at electric field strengths between 0.5 – 10 V.

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