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Iontophoresis of Salicylic Acid From Salicylic Acid Doped Poly(p-phynylene vinylene)/ Polyacrylamide Hydrogels SUMONMAN NIAMLANG, ANUVAT SIRIVAT TEAM[1] — The apparent diffusion coefficients, D_{app}, and the release mechanisms of salicylic acid from salicylic acid-loaded polyacrylamide hydrogels, SA-loaded PAAM, and salicylic acid-doped poly(phenylene vinylene)/polyacrylamide hydrogels, SA-doped PPV/PAAM, were investigated. In the absence of an electric field, the diffusion of SA from the SA-doped PPV/PAAM hydrogel is delayed in the first 3 hr due to the ionic interaction between the anionic drug and PPV. Beyond this period, SA can diffuse continuously into the buffer solution through the PAAM matrix. D_{app} of SA-doped PPV/PAAM is higher than that of the SA-loaded PAAM, and the former increases with increasing electric field strength due to the combined mechanisms: the expansion of PPV chains inside the hydrogel; iontophoresis; and the electroporation of the matrix pore. Thus, the presence of the conductive polymer and the applied electric field can be combined to control the drug release rate at an optimal desired level.

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