In this study, the effects of addition concentration of various poly-γ-glutamic acid (γ-PGA) and pH of phosphate buffer solution (PBS) on the release properties of hydralazine HCl (HA-HCl) from PGA was investigated. Three types of PGA, high molecular weight (MW) Na+-γ-PGA (H-PGA), low MW Na+-γ-PGA (L-PGA), hydrogel-Na+-γ-PGA (HG-PGA), were donated by the Vedan Enterprise Co., Taichung County, Taiwan. It was found that the drug release percentage (%) of HA-HCl from L-PGA, H-PGA or HG-PGA was up to 98% (0.039 g/L), 89% (0.036 g/L) or 96% (0.038 g/L), respectively, while the release percentage (%) increased up to 89% or higher as increasing the addition concentration of PGA. The drug release slope of HA-HCl decreased and the release time T1/2 increased when the addition concentration of PGA increased. No matter when PGA was added in PBS (phosphate buffer solution) or not, the drug release rate of HA-HCl at pH 2.2 of PBS was faster than that at pH 7.4 of PBS. This result may be due to the degradation of PGA and dialysis membrane, the large pore size of the dialysis membrane, and the weak ionic binding bonds between PGA and HA-HCl at much acidic PBS condition. The drug release time T1/2 of HA-HCl increased as the molecular weight of PGA, which was added in PBS, increased. The drug release rate (slope) or time of HA-HCl could be affected by the various type and MW of PGA, and pH of PBS. This may be due to the chemical structure of the various type of PGA.


Otani, Y., Tabata, Y., and Ikada, Y. 1998b. Hemostatic capability of rapidly curable glues from gelatin poly (L-glutamic acid) and Tabata, Y., and Ikada, Y. 1998a. Effect of additives on gelation and tissue adhesion of gelation poly (L-glutamic acid) mixture. Biomater. 19:


Donbrow, M., and Friedman, M. 1975. Timed


Donbrow, M., and Friedman, M. 1975. Timed

