DETERMINATION OF DISSOCIATION CONSTANTS OF THE ANTICANCER DRUGS EPIRUBICIN HCl AND IRINOTECAN HCl, BY POTENTIOMETRIC METHOD

Filiz Ariöz Özdemir, Beril Anilanmert, Neşė Erdinc
Marmara University Faculty of Pharmacy Dept. of Analytical Chemistry
Tübbiye Cad. Haydarpaşa, İstanbul, TURKEY
filiz93@yahoo.com

It is important to know the dissociation constants of epirubicin HCl, an anticancer drug which is used in colorectal cancer for a long time and a new drug irinotecan HCl, also used in colorectal cancer, from the point of commenting on their penetration in pharmacokinetics and their stability in infusion solution. Since these drugs are given to the patients in infusion solution clinically, we have investigated the dissociation constants of epirubicin HCl and irinotecan HCl, in infusion solution (0.9% NaCl solution). We studied potentiometrically, using Irving-Rossotti method. In this study, the dissociation constants of epirubicin HCl and irinotecan HCl at room temperature and 0.154 M ionic strength (which is the ionic strength of 0.9% NaCl infusion solution) are found as follows:

For epirubicin HCl:
\[ \text{p}K_a1 = 8.44 \pm 0.20 \]
\[ \text{p}K_a2 = 10.69 \pm 0.17 \]
\[ \text{p}K_a3 = 11.42 \pm 0.19 \]

For irinotecan HCl:
\[ \text{p}K_a = 8.79 \pm 0.18 \]