

## Preformulation Study of Prokidin : Chemical Stability

Lee YunJin<sup>o</sup> , Chun InKoo

College of Pharmacy, Dongduk Women's University, Seoul 136-714, Korea

The effects of pH and temperature on the degradation of prokidin in various buffered aqueous solutions (pH 1.32 ~ 9.66) and temperatures (35, 45 and 60 °C) were investigated. The effect of ionic strength on the degradation of prokidin was also measured by varying ionic strength (0.0466 ~ 1.5) at pH 7.35 and 45 °C. The effect of metal ions on the degradation of prokidin at pH 7.35 and 3.98 was observed. The degradation of prokidin followed the pseudo-first-order kinetics. The degradation rate of prokidin showed pH-dependent and temperature-dependent patterns. Prokidin was very stable at the pH below 3.98, where half-lives at 35, 45 and 60 °C were 294, 206 and 107 day, respectively. However, it degraded very rapidly at pH above 6.49; the half-lives at 35, 45 and 60 °C were 60, 25 and 13 day, respectively. As ionic strength increased, the degradation rate of prokidin increased. Some metal ions increased the degradation rate in the rank order of  $Mn^{2+} > Fe^{3+} > Cu^{2+} > Fe^{2+}$ . On the other hand, other metal ions such as  $Bi^{3+}$ ,  $Ba^{2+}$ ,  $Zn^{2+}$ ,  $Ni^{2+}$ ,  $Co^{2+}$  and  $Mg^{2+}$  did not show unfavorable effect.

Keyword – Prokidin ; Stability ; pH–rate profile