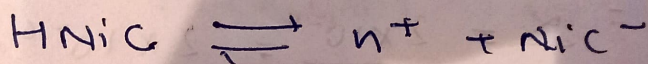


Q. Nicotinic acid ($K_a = 1.4 \times 10^{-5}$) is presented by the formula HNic . Calculate its percent dissociation in a solⁿ which contains 0.1 mole of Nicotinic Acid per 2 liter solⁿ.

Solⁿ

$$C_{\text{initial}} = \frac{0.1}{2} = 0.05 \text{ mol L}^{-1}$$



$$\text{at Eq. } (0.05 - x) \quad x \quad x$$

x is small, so $0.05 - x \approx 0.05$

$$K_a = \frac{[\text{H}^+][\text{Nic}^-]}{[\text{HNic}]} = \frac{x^2}{0.05} \Rightarrow x^2 = (0.05 \times 1.4 \times 10^{-5})$$

$$x = 0.83 \times 10^{-3}$$

$$\% \text{ Diss} = \frac{0.83 \times 10^{-3}}{0.05} \times 100 = \boxed{1.66}$$