



**Figure 4.1.** Concentrations of the acidic  $[HBa]$  and basic  $[Ba^-]$  forms of an acid with total concentration  $[Ba]_T = 10^{-2} \text{ mol kg}^{-1}$  and an equilibrium constant  $K = 10^{-6}$ , as a function of pH. The concentrations are equal at the point where  $pH = pK$ . When the criteria of charge balance is included in the equations, the system is defined at a single pH where  $[H^+] = [Ba^-]$ , indicated by the small circle.