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The stability of injectable oxytocin with respect to pH

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Oxytocin injection is an essential treatment for the induction and augmentation of labour. The stability of oxytocin in aqueous solution was investigated soon after the discovery of oxytocin in 1906. No study that is stability indicating has encompassed the full pH rate profile for oxytocin to better understand the degradation rates of oxytocin in solution. The aim of this study was to investigate the degradation kinetics of oxytocin as a function of pH. A stability indicating High-Performance Liquid Chromatography (HPLC) method was developed to quantitative oxytocin in solution. Degradation rate constants were determined from HPLC data. Accelerated degradation of oxytocin formulated at pH 1.12, 1.16, 1.76, 3.20, 3.50, 4.15, 4.35, 5.40, 6.63, 7.55 and 8.00 was performed at 65°C. The degradation rate of oxytocin was pH-dependent and followed first order kinetics. The fastest degradation of oxytocin was at pH 1.12 giving a shelf-life of 0.43 hour at 65°C. Degradation was slowest at pH 3.50 with a shelf-life of 65.13 hours at 65°C. Therefore, this pH represents the pH minimum that is most appropriate for achieving optimum stability.

Biography

Ahmad F K Alzayadi has completed his Bachelor, Master in Clinical Pharmacy at Curtin University. He has almost completed his PhD studies also at Curtin University. He is a registered pharmacist, practicing in the north metropolitan area of Western Australia. He is also involved in various community works through the Fadeck Cultural Centre in Western Australia.

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