Kinetic and Energetic Correlations in the Reaction of Vitamin-C Tablets

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Abstract:

The oxidation time based on the fitting of experimental data was taken out. Drawing of the Absorbance (λmax=265 nm) vs. oxidation time (sec) of Vitacid C by K2 CrO4 were studied. Energy consumed during oxidative degradation of vitamin-C(Vit-C) Tablets in aqueous potassium chromate (K2CrO4) medium was studied spectrophotometrically at 25°C. The reduction of the absorbance at~ 265 nm with increasing time was scanned. A good linearity (R-square ≥ 0.99). The slope (EC/ppm) vs reductant (Vit-C/ppm) at constant oxidant is about 1.218, while, the slope of EC vs. oxidant (K2CrO4 /ppm) is about 3.653. Calculations suggest that the EC during reduction of Cr (VI) to Cr (III) is about three times of magnitude faster than the oxidation of the Vit-C sample.

Keywords:

Ascorbic acid(H2A); Hexacyanoferrate(III); kinetics; oxidation; mechanism

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