

Polarographic study of the photodecomposition of nimodipine

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Nimodipine, a calcium antagonist belonging to the dihydropyridine family, produces a well-defined polarographic peak due to the four-electron reduction of the nitro group. This peak was used to track the photodecomposition of nimodipine induced by UV light and daylight. Nimodipine was modified by UV irradiation with degradation following first-order kinetics. A degradation rate constant of 0.099 min^{-1} , with a half-life of 7.78 min, for UV irradiation without a filter was obtained. Furthermore, a quantum yield of 1.32×10^{-3} molecules/quantum absorbed was measured with a chemical actinometer. The UV degradation product, which was isolated and identified, showed that irradiation of nimodipine causes oxidation of the dihydropyridine ring and transmutation of the nitro group in the nitrobenzene moiety. Copyright © 1992 Wiley-Liss, Inc., A Wiley Company