

Synthesis and electrochemical oxidation of hybrid compounds:

Dihydropyridine-fused coumarins

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In this paper, a series of six dihydropyridine-fused coumarins were synthesized and electrochemically characterized in dimethylformamide (DMF). Dihydropyridine ring oxidation on glassy carbon electrode (GCE) for condensed heterocyclic compounds revealed a single anodic peak. Oxidation potential values correlated fairly well with substituent effects at 9-position. The overall oxidation mechanism involved 2-electrons and 2-protons as determined by chronoamperometry. Controlled-potential electrolysis followed by UV-Visible spectroscopy proves that dihydropyridine-fused coumarins are electrochemically oxidized in DMF giving rise to the aromatic pyridine derivative. ESR experimental spectra show a triplet, due to the C-centered dihydropyridyl radical trapped with N-tert-butylamine- α -phenylnitron (PBN). Hyperfine coupling constant values (aN) of dihydropyridine-fused coumarins were higher than corresponding values for non-fused ones. These results could be due to the effect of the coupling