Oxidation-Induced Acyl Group Transfer from Hydroquinone Esters to Nucleophiles

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Bivalent oxidation of 3,5-di-\textit{tert}-butyl-hydroquinone monoesters leads to phenoxyenium ions, which can transfer an acyl group to nucleophiles. Based on this principle, dipeptides, glyco-amino acids and \textit{N}-sulfonfyl-amino acids were synthesized from hydroquinone esters of amino acids and \textit{p}-toluene sulfonic acid. For this reaction, direct anodic and indirect mediated oxidation, as well as chemical oxidation with NBS or trisaryl ammonium salts, was used. The mechanism of the acyl transfer is discussed in terms of a direct and/or a mediated process. A spirocyclic key intermediate was isolated and its molecular structure determined by X-ray crystallography.

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