Neglected Aspects of Anthracenide (Anthracenidyl)Chemistry reactions of two N-Benzoylaziridines.

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Abstract

Reaction of anthracenide A ·- with N-benzoylaziridines 1a,b forms charged radicals 3a,b by single electron transfer and homolytic ring opening. Reactions follow that are known or expected as e.g. coupling with position 9 of A ·- forming dihydroanthracene anions 9a,b that yield amidoethylated dihydroanthracenes 10a,b, or react with 1a,b giving finally 9,10-bis-amidoethylated dihydroanthracenes 11a,b. Results depend on experimental conditions and on the counter ions Na+ or Li+. Coupling is not regiospecific: contributions by positions 2 and 1 reach 29% or 4%, respectively, of total coupling with the primary radical 3a; much higher contributions are possible with Li. Product 21s (probably 3,3-disubstituted tetrahydrobianthryl) may arise by hydrogen detachment from the first intermediate (29) of coupling with position 2 and dimerization of the formed 2-substituted A ·- (30). Coupling products may be fully aromatized or may be hydroxylated in one of the benzylic positions. With counter ion Li+ a non-SET reaction of 1a with the dimer of A ·- is indicated by the isolation of 9-benzoyl-dihydroanthracene 15 and by 19% yield of 16a (aromatized 10a). Reaction of 3b with anthracene is indicated by 10,10-disubstituted tetrahydrobianthryl 37.