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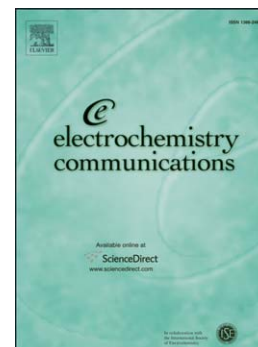
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Solid phase modification of carbon nanotubes with anthraquinone and nitrobenzene functional groups.

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Abstract: A new solid phase modification method is developed for chemical attachment of anthraquinone (AQ) and nitrobenzene (NB) functional groups to surface of carbon nanotubes (CNTs) through aminomethyl benzene ($-C_6H_4CH_2NH-$) linker. The benzyl amine linker was spontaneously grafted onto the CNTs by refluxing in the $C_6H_4CH_2NHBoc$ diazonium salt at 60 °C in acetonitrile solution. After the removal of the Boc protecting group, AQ and NB groups were attached to the benzyl amine linker by solid-phase amide coupling. The grafted CNTs were characterized using FTIR and cyclic voltammetry techniques, surface coverage and stability of the tethered functional groups was evaluated. The dispersion of modified CNTs is significantly improved in organic solvent and the surface loading reaches up to 0.20 mmol/ g for both anthraquinone and nitrobenzene.

Keywords: carbon nanotubes; modification; anthraquinone; nitrobenzene, coupling reaction, solid-phase synthesis

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